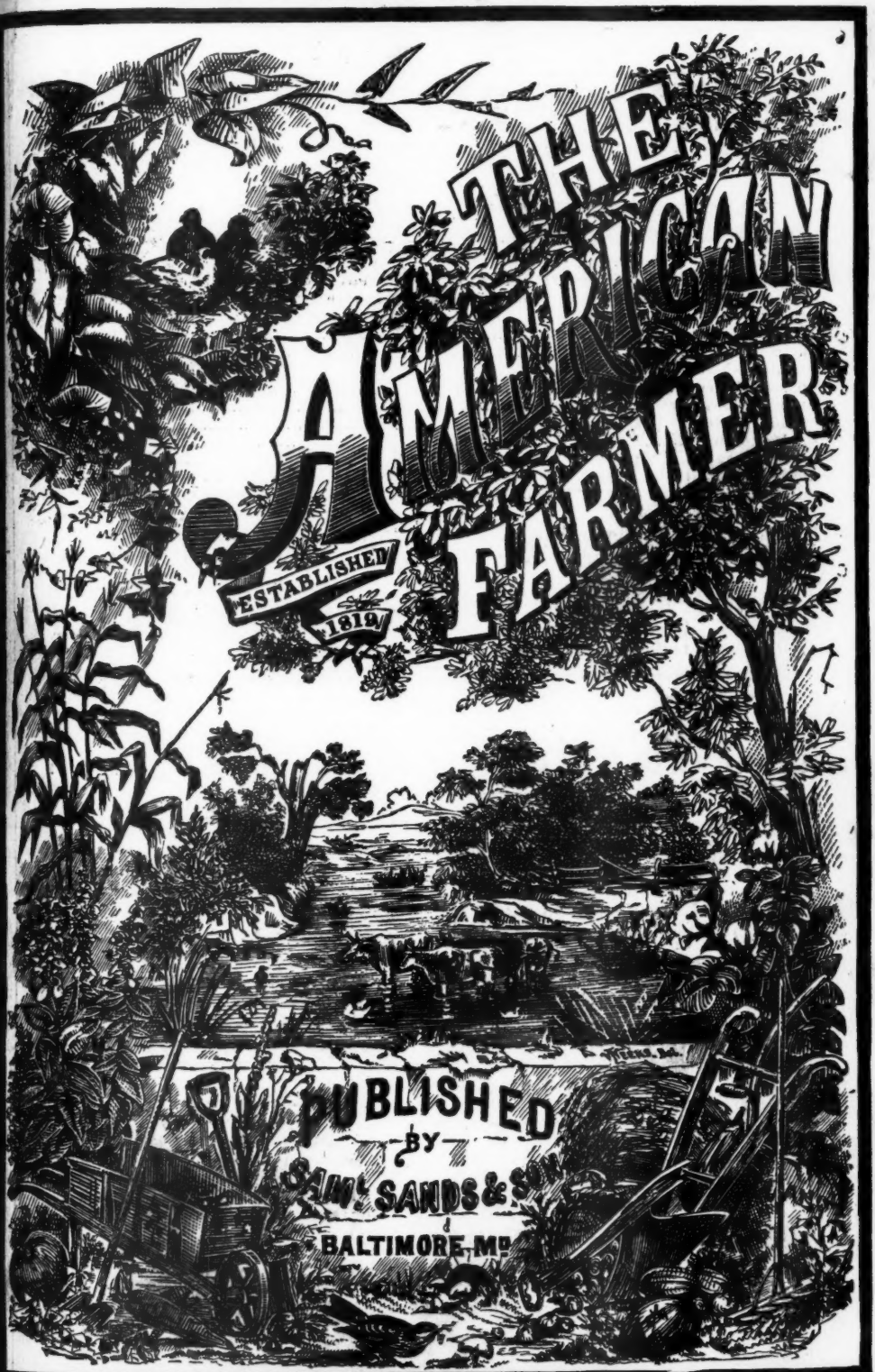
THE
AMERICAN
FARMER
ESTABLISHED
1819
PUBLISHED
BY
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BALTIMORE MD

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Organic Matter	40.12 per cent.
Containing—Nitrogen, 4.08; Ammonia 4.95	
Inorganic Matter	56.14 per cent.
Containing Phosphoric Acid	24.52 per cent.
Containing Bone Phosphate of Lime	53.52 per cent.
Insoluble Matter	2 51 per cent.

This is the BEST SAMPLE OF BONE DUST I CAN FIND IN THE MARKET, and call your especial attention to the LARGE PERCENTAGES OF VALUABLE MATERIAL for the improvement of the soil, and to the SMALL PERCENTAGES of moisture and insoluble matter

Respectfully, etc., P. B. WILSON, *Analytical and Consulting Chemist.*

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CATTLE, HORSES, SHEEP, SWINE and POULTRY. In this Department we buy only from breeders of established reputation of the several kinds, and cannot undertake to procure ordinary farm stock, such as draft horses, milch cows, &c In this vicinity great attention is paid to some particular breeds of stock, and specimens can be had here which are nowhere to be surpassed.

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THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. V.—No. 11.] NOVEMBER, 1876. [NEW SERIES.

Feeding Value of Grain, &c.

The English *Live Stock Journal* gives some comparative statements between the value of oats and other grain used in feeding horses. It claims that sound oats and beans in due proportion, and at least a year old, are the very best food for a galloping horse; the only food on which it is possible to get the very best condition out of a race-horse or a hunter. It has also recently become known that horses do slow work and get fat, indeed too fat, on Indian corn, which is frequently one-third cheaper than the best oats. In the east, horses are fed on barley, and it is a popular idea with English officers who have lived in Persia and Syria, that the change of food from barley to oats often, when imported, produces blindness in Arab horses. Now, although no men understand better or so well how to get blood horses into galloping condition as English grooms, they do not, and few of their masters do, know the reason why oats and beans are the best food for putting muscular flesh on a horse. The agricultural chemist steps in here, makes the matter very plain, and shows that if you want pace, Indian corn, although nominally cheaper, is not cheap at all. According to Dr. Voelcker's and other chemists' analyses we find, in oats, beans, barley, and maize, the following constituents:

	Oats.	Beans.	Barley.	Maize.
Water	14.3	14.5	14.3	14.4
Nitrogenous or muscle-producing compounds	12.0	25.5	9.5	10.5
Starch and other non-nitrogenous heat and fat producing compounds	54.4	43.0	64.1	61.0
Oil, as ready-made fat	6.0	2.0	2.5	7.0
Indigestible woody fibre	10.3	11.5	7.0	5.5
Mineral matter (ash)	3.0	3.5	2.6	2.1
Total	100.0	100.0	100.0	100.0

It was a common saying in Leicestershire, before deep draining, clean cut fences, increased sheep-feeding, had improved agriculture at the expense of fox-hunting, after one of those five-and-forty minute runs at best pace that are now so rare—"it found out the horse that ate old beans and best oats." In fact, they made experiments they did not understand, which it was left for the modern chemist to explain.

When we feed a bullock, a sheep, or a pig for sale, after it has passed the store stage we want to make it fat as quickly and as cheaply as possible; but with a horse for work the object is to give him muscle—in common language, hard flesh. There are times when it is profitable to make a horse fat, as, for instance, when he is going up for sale, after a severe hunting season. For this purpose an addition of about a pound and a half of oil-cake to his ordinary food has a good effect. It is especially useful when a horse that has been closely clipped or singed is in low condition. It helps on the change to the new coat by making him fat. A horse in low condition changes his coat very slowly. Now oil-cake is composed of:

Moisture	12.00
Oil	11.50
Nitrogenous compounds	29.70
Mucilage and digestible fibre	27.80
Woody fibre	12.00
Mineral matter (ash)	7.00
Total	100.00

When, from any cause, there is difficulty in getting a supply of the best oats, an excellent mixture may be made of crushed maize and beans, in the proportion of two-thirds of maize and one of beans, which exactly afford the proportions of flesh-forming and fat-forming food.

Bran is a very valuable food in a stable for reducing the inflammatory effect of oats and beans. Made into mashes it has a cooling and laxative effect; but used in excess, especially in a dry state, it is apt to form stony secretions in the bowels of the horse. Stones produced from the excessive use of bran have been taken out of horses after death weighing many pounds. When sawn through they appear to be composed of a hard crystalline mass, deposited in regular annular rings, resembling in appearance the concentric yearly rings of wood; they prove to be composed of phosphate of magnesia and ammonia. Millers' horses are particularly subject to this malady.—The best way to guard against it is to add half a pint to a pint of linseed, boiled until quite soft, to the mash of each horse.

Improved Sheep in Maryland.

We had the pleasure recently of a visit from Mr. Gray, one of two brothers of that name from Erie county, N. Y, who have lately bought a farm in Kent county, Maryland, and on which they have placed about one hundred head of long-wool sheep—comprising thoroughbred Cotswolds, Leicesters and Lincolns. The entire flock averaged at the last shearing 10 lbs. of wool, and one Lincoln ram weighed 408 lbs., and sheared 21 lbs. 7 oz. of washed wool.

The Gray Brothers propose to sell thoroughbred lambs of each breed; and we congratulate our friends in their immediate vicinity, as well as those more remote, at the opportunity which the enterprise of these gentlemen thus gives them of securing these fine kinds of sheep for the improvement and increase of their flocks; and we are also glad to know that Maryland has had added to the number of her farmers, interested in this too much neglected branch of agricultural industry, such experienced and intelligent flock-masters as the Messrs. Gray.

Crossing for Improvement of Common Sheep.

A correspondent having asked the *National Live Stock Journal* the following question: "What is the best cross upon our common sheep for quality and quantity of wool, for the general market, and for weight of carcass?"

The editor answers:—This inquiry can be replied to from so many stand-points, that an opinion in favor of either of the recognized breeds requires certain explanations. A cross of the long-wool—say Cotswold, Leicester or Lincoln—will insure an increase of carcass to nearly or quite double the value of the common, or native dam. The fleece will have additional length, considerable improvement in style, and a perceptible increase in weight. The improvement in length and lustre will add to its market value.

A cross of middle wool—say Southdown, Shropshire, etc.—will add greatly to the quality of the meat; somewhat less, though considerable, to its quantity; will thicken somewhat the fleece, and give it slight additional weight, without adding much to its value per pound.

A cross of the American Merino will make a marked improvement in fleece—adding to all its desirable characteristics, except that of length. The weight, in many instances, will be doubled, while in any other than an anomalous condition of the market, the value per pound will be somewhat increased. The size of carcass will not be increased, though its compactness and symmetry of outline will be greatly improved.

With the average farmer the more satisfactory results will be secured by a cross with the long-wool breed, or the fine wools. The one will show its chief improvement in the carcass, the other in the fleece—though the merits of neither will be confined to these prominent characteristics.

As a rule, the least satisfactory results will be derived from a cross with the "Downs"—this, not from any defect in the breed, *per se*, but rather from less diversity in size in the one, and character of fleece in the other. Sheep from this cross may reasonably be expected to withstand the hardships,—sometimes privations, incident to the lot of the flock when compelled to work its living off the average farm, with better results than would be realized from a long-wool cross similarly treated—and, for "roughing it," would prove nearly equal to the results of the Merino cross.

In view of these considerations, added to some minor ones, that may be classed as results of taste rather than experience, as a general proposition, we would advise a cross of the Merino in preference to the others referred to—always with the recommendation that the best rams within reach of the means of the flock-owner be used—and that none of the male animals of the cross be used as sires, no matter how near the desired standard they may approach.

American Berkshire Association.

Among the many associations which are being formed for the promotion of improved live stock interests is one at Springfield, Ill., to "revise, preserve and publish the pedigrees of pure-bred Berkshire swine, and to collect and disseminate information calculated to advance the interests of swine-breeders generally." We recently published some extracts from a prize essay on the Berkshires, for which this association had offered a premium, and we now find by a circular from the secretary of the association, that the association has decided to offer another premium of $100 for the best approved essay on the diseases of Swine, their causes, preventives and remedies. Said essay to be practical and exhaustive. The competing essays to be forwarded to the office of the secretary at Springfield, Ill., on or before the 1st of January, 1877. The award will be made and the money paid at the annual meeting in February following. All competing essays will be the property of the association.

Competition is invited from all practical men who have given attention to the diseases to which swine are subject. Prof. Law, of Cornell University, N. Y.; Prof. Smith, of Toronto Veterinary College, Canada; Hon. T. C. Jones, of the "National Live Stock Journal," and E. G. Bedford, Esq., of Kentucky, have kindly consented to act as the awarding committee.

Profits of Sheep.

Last year Mr. John T. Ross, of Loudoun county, Va., bought nine hundred dollars worth of sheep, among them two hundred and thirty-five ewes. These he divided at lambing time into four flocks, which he watched with tender care, and the result is that he raised two hundred and seventy-eight lambs, and for the lambs and the wool he obtained $1,246, or $138.44 for each one hundred dollars invested.

Veterinary.

Report on "Hog Cholera."

The State Board of Agriculture of Missouri appointed Dr. Demers, a gentleman said by the *Rural World* to be a thoroughly educated Veterinarian, to investigate the causes, prevention and cure of the "hog cholera," so called. The report of the doctor has been published in full by the St. Louis papers, and from the abstract furnished by the *Rural World* we make the following extracts:

Nature of the Disease.

As to the general nature of the disease, says the investigator:

The morbid process presents itself in a majority of cases, as a catarrhal rheumatic, and in others as a gastric rheumatic or bilious rheumatic affection, and exhibits always, more or less plainly, a decidedly typhoid character. As a catarrhal rheumatic affection it has its principal seat in the mucous membrane of the respiratory passage, in the substance of the lungs, in the pulmonal pleura or serous membrane coating the external surface of the lobes of the lungs, in the costal pleura or serous lining of the internal surface of the chest, in the diaphragm, and in the pericardium or serous bag enveloping the heart. As a gastric rheumatic affection the principal seat of the disease is found in the abdominal cavity, but especially in the liver, in the spleen or milt, in the large and small intestines, in the kidneys and ureters, and in the peritoneum or serous membrane lining the interior surface of the abdominal cavity, and constituting the external coat of most of the organs situated in that part of the body.

Proper Name for it.

Hence, the name hog cholera is an ill-chosen one; it tends to convey the idea that the disease in question is similar to, or identical with, the cholera of men, which is not the case; therefore, the appellation "hog cholera," which has already led to a great many mistakes in regard to treatment and measures of prevention, should be abolished at once, and a more appropriate name should take its place. As such a one I wish to propose "epizootic influenza of swine," for two reasons: First, the disease in question bears, in all its morbid features, and especially in the diversity of its forms, produced by the differences in the seat of the morbid process, a striking resemblance to the yet well remembered epizootic influenza of horses, which swept the whole country a few years ago from the Atlantic to the Pacific; second, I admit it might be more convenient to select a name derived from a conspicuous and characteristic symptom, or from an important and constant morbid change—pleuro-pneumonia of swine, for instance—if the main seat of the morbid process was always in the respiratory organs, or invariably the same in every patient. But as this is not the case, as the seat of the disease is found not only in the respiratory apparatus, but also, in a large number of cases, in the parts and organs connected with the digestive process, and, in some cases, even in the centers of the nervous system, a name had to be chosen that is comprehensive enough in its meaning to cover all the different forms under which the disease is able to make its appearance, and, at the same time, sufficiently distinct to prevent any diagnostic confusion. As such a name, I cannot think of any that would answer better than that of epizootic influenza of swine, which, therefore, I recommend for general adoption.

Symptoms of the Disease.

Animals afflicted with the catarrhal rheumatic form indicate the presence of the disease by a short, more or less hoarse, hacking cough—generally one of the first symptoms—by difficulty of breathing, a panting or drawing motion of the flanks at each breath, by holding the head in a peculiar, stretched and somewhat drooping position, by a slow and undecided gait, a peculiar hoarseness when caused to squeal, etc. The attending fever is severe enough to announce its presence by unmistakable symptoms, such as accelerated pulsation, changeable temperature, etc. Some of the sick animals show at the beginning of the disease a tendency to vomit, and have diarrhœa, while others are more or less constipated from the first, and remain constipated till the disease is ready to terminate in death. If the catarrhal character is the most prevailing, but especially if the morbid process has developed itself principally in the throat and in the windpipe, more or less outside swelling (quinsy) will make its appearance.

Causes of the Disease.

Two classes of causes for the disease are assigned. The first embraces everything that interrupts the perspiration of the animal, and the second:

All such noxious influences as are able to interfere directly with the process of respiration, and all such foreign substances as enter the respiratory passages, and cause thereby congestion and inflammation of the respiratory mucous membranes and of the tissue of the lungs.

The doctor finds that the functions of the skin are seriously interrupted by lice and filth. He says all the animals he examined—and these numbered 1,000—"were exceedingly lousy." He refers then to the exposure of hogs; to the sudden changes of the temperature; to their being confined to quarters where they are obliged to wallow in filthy holes without an opportunity for a clean bath; to the large herds that are so confined, always resulting in the sickness first of the smaller animals; to the breathing of manure dust; to the drinking of foul water, and the eating of mouldy corn—the latter sure to induce the typhoid condition.

Hygienic Mistakes.

Finally, I wish to say a few words in regard to hygienic mistakes committed on almost every farm in the west. I refer to the practice of feeding the swine almost exclusively with corn, a practice which certainly is not calculated to produce healthy and vigorous animals, but which necessarily must result, as I shall try to show, in weakening the organism, and in creating a predisposition to disease. How much or how little this practice has contributed, in producing the now prevailing epizootic influenza of swine,

I am not prepared to decide. I have, however, reasons to suppose that this practice has not been without influence. The organism of a domestic animal is composed of about fifteen to twenty elements, or undecomposable constituents of matter, united to numerous organic compounds. A constant change of matter is taking place, and a part of these elements, in form of organic compounds, is constantly wasted, and carried off by the various processes of secretion and excretion. The organism, therefore, in order to remain healthy, and to maintain its normal composition, must receive, from time to time, an adequate supply of those elements, contained in suitable or digestible organic compounds, so as to cover the continual loss, and, if the animal is young, to produce growth and development. The simplest way to introduce these elements into the animal organism is to give food which contains them in nearly the right proportions. A few of these elements, besides hydrogen and oxygen, are sometimes, in the form of suitable compounds, contained in limited, though very seldom sufficient, quantities in the water for drinking; for instance, calcium in the form of lime, iron, etc. One important element—oxygen—enters the organism also in large quantities, through the lungs and through the skin, but all others have to be introduced wholly, or almost wholly, in the form of food. Almost all kinds of food, however, milk perhaps excepted, lack some important elements in their composition, contain others in insufficient quantities, and still others in a greater abundance than required. Therefore, if such a kind of food is given exclusively—corn, for instance—which is destitute of some of the mineral elements, and contains only an insufficient quantity of nitrogenous compounds, which are of so great an importance in the animal organization, irregularities and disorders in the exercise of the various functions, and imperfect development of certain parts and organs, will be the unavoidable results.

Choking.

Professor James Law, in his *Farmers' Veterinary Adviser*, thus treats this subject:

This is especially common in cattle feeding on roots, potatoes, apples, pears, and the like, because of the habit of jerking up the head to get the object back between the grinders. Pieces of leather, bone, etc., chewed wantonly by the cattle, often slip back in the same way. Horses suffer mainly from badly shaped balls or sharp-pointed bodies, dogs from bones. Ravenous feeders will choke on dry chaff, cut hay, etc., being imperfectly mixed with saliva, and the same will happen in cases of diseased teeth or salivary fistula or calculus.

Symptoms of pharyngeal and cervical choking.—When the object is arrested in the throat or neck there is great distress, staring eyes, slavering, violent coughing, with expulsion of dung or urine, continuous efforts at swallowing, and in cattle tympany of the first stomach which may suffocate the animal in fifteen or twenty minutes. I have seen an animal die in five minutes when the object was lodged directly over the opening in the windpipe. In horses there is in addition an occasional shriek, and water returns by the nose when drinking is attempted. In omnivera and carnivera retching and vomiting are prominent symptoms. A careful examination along the furrow on the left side of the neck will usually detect the offending object.

Symptoms of thoric choking.—If the object is lodged in that part of the gullet which lies within the chest, cough, slavering and gulping may be absent, but there are efforts at regurgitation and the discharge of liquids by the mouth (in horses the nose.) This, with the inability to swallow solid food, is very characteristic. Tympany is usually slight, and there may be tremors at intervals.

Symptoms of choking with finely divided dry food.—These are the same as for solid masses, according to the situation, but in addition there is in the groove on the left side of the neck, a diffuse soft yielding swelling, provided the obstruction is situated above the chest.

Treatment.—Sharp-pointed bodies lodged in the throat must be carefully sought for and extracted. Solid objects in this region can usually be withdrawn with the hand. Have the animal held with the head elevated into a line with the neck and the mouth held open with a balling iron; then the tongue being drawn out with the left hand, the right is passed through the mouth into the throat and the middle finger hooked over the offending body so as to withdraw it. If lodged still lower it may often be worked up into the throat by pressure beneath it with one hand in each furrow along the lower border of the neck. A vigorous jerk at the last, seconded by the action of the pharynx, will often lodge it in the mouth, but if not it is easily extracted as above advised.

Should this fail, and tympany prove threatening, lose no time in gagging the animal. A smooth roller of wood two inches in diameter is tied into the mouth by cords carried from its ends around the top of the head—behind the horns in cattle. Swelling never increases dangerously with this applied, and in a few hours the obstruction usually passes on.

More prompt relief may be obtained by using a probang of lesther or other material with a spiral spring wire internally, the whole two-thirds of an inch in diameter, six feet long, and with one end enlarged to one and a half inches in diameter and cup-shaped. This is oiled, and the head having been brought into a line with the neck, the balling iron introduced, and the tongue drawn out, the cup-shaped end is introduced and pushed on until the obstruction is reached. Steady pressure must be kept up on this for a few seconds, when it will yield and should be passed into the stomach by introducing the probang to its whole length. If it resists, leave the animal for an hour or two gagged, and try again. In the horse the probang cannot be safely passed without casting, and it should never be passed on until by examination in the furrow on the side of the neck, the operator has ascertained that it has entered the gullet, and is clear of, and above the windpipe. For the small animals the probang must be made correspondingly small.

The use of whips and such like objects is very reprehensible as being liable to tear the gullet

An effective probang may be constructed out of a piece of stiff, new rope, a few bundles at the end of which have been opened out and tied back so as to form a cup-shaped extremity. After being used this may be hung up straight on several nails driven into the wall and will be ready for the next occasion.

In choking with finely divided food the probang only packs it firmer, and gagging and time will rarely dislodge it. Pour water or well-boiled gruel down, and seek by manipulation to break up the mass and allow it to pass on little by little. Instruments have also been devised for extracting the obstructing mass. Failing otherwise the gullet must be laid open, the offending matter extracted, the wounds sewed up, and the animal fed for a time on liquids only.

Horses are sometimes choked by eggs given by foolish grooms. These may be punctured with a needle and then crushed between two solid bodies on different sides of the neck.

Prevention.—Besides the more obvious resort of withholding dangerous articles, the mere tying down of the head will prevent choking in cattle feeding on turnips, apples, etc. A loop of rope fixed to the ground is to be hung over the horn when such food is supplied. Solid food should be to a large extent withheld for a week after the relief of choking, until the slight irritation or inflammation has subsided.

Rubbing the Tail.

When I bought my first horse, (a gelding) some two-score years ago, I was told by the man (an old man) of whom I bought him that the horse was so constituted in his sheath that it would get foul, and must be cleaned out as often as once a month. This I must do with tepid water and a soft rag, and do it thoroughly. If I failed to keep the horse clean, irritation and fever would set in, ulcers and scabs would form on and near the roots of the tail, and to allay the itching he would rub his tail against anything he could, and in this state the horse would be restless and out of health. After one case of neglect one day I let my horse loose in the yard. On putting him in the stable at night I found that he had rubbed the hair nearly all off his tail for some six inches from his body. While in the yard he had found a knot on a fence-post, just high enough from the ground for him to use. So severe was the itching and rubbing that the tail was quite bloody. Here I learned a lesson—to remember the advice of an old man. It required one year's time for the hair to grow again to its natural length.

Still further, I now own a very valuable gelding that is fifteen years old, afflicted in the same way. Twice I have neglected to clean him sufficiently often to keep away irritation and the itching of the tail. Twice he has rubbed the hair off badly, and, of course, it disfigured him. When I have kept him clean in his sheath, which is more difficult to do in winter than when he is out in pasture in summer, there is no trouble about the tail, because there is no irritation or cause for it. The operation is a very unpleasant one at times, as the smell is very offensive,—nothing more so, at least, to me,—particularly if the sheath and foul matter has become much inflamed by remaining foul too long. A true sign to know when a horse is foul—the rim of the sheath is swollen. There is no relief for the poor sufferer in his means for cure. He rubs his tail because he can get nothing better, and that he will do every day, if he could, until the cause be removed. To heal the tail after being rubbed, and to cause the hair to grow rapidly, I wash with warm water and castile soap and apply castor oil; lard will do, though not so well. I have owned many mares; they are never thus afflicted, because it not their nature to be so; geldings only.—*New York Herald.*

A Veterinary School.

If, instead of permitting the turning of our agricultural college into a preparatory school for the navy, the legislature had peremptorily directed the establishment of a veterinary and a chemical department, we would have felt the better disposed to forgive the waste and misappropriation of the funds which have been drawn from the State treasury heretofore, to support so useless an institution as the college has become. In alluding to the neglect of the establishment of veterinary schools in this country, the *Scientific Farmer* remarks:

Since this subject was touched upon in a recent number of the *Scientific Farmer*, two letters have appeared, one in the Boston *Gazette*, the other in Wilkes' *Spirit of the Times*, written by a "Boston Boy," who is now a student at the Royal Veterinary Institute, Berlin, in which the writer makes a strong appeal for means, for the establishment of a Veterinary school in connection with Harvard University. If it were possible to have this school established upon a firm basis, and with such a connection as this university would guarantee simply from its own standing both at home and abroad, the benefit direct to our great stock-owning interests, and through them indirectly to the whole country, would be almost beyond estimate, substantially or humanely. Regarding the means of educating men for this profession we are to-day immeasurably behind every other civilized country. Even the governments of China and Japan are taking the matter in hand, establishing schools, and importing educated Veterinarians from abroad as professors. Why is it that we Americans, as enlightened a nation as we suppose ourselves to be, so persistently ignore the claims of the Veterinary art, and allow our animals to suffer, and ourselves to sustain unnecessary loss at the hands of a set of ignorant men, self-styled Veterinary surgeons, who do not know the first rudiments of anatomy, pathology, physiology, or the action of drugs? or else, having had experience, follow the advice recently given by a noted divine, "and keep the horse doctor as far away as possible from the sick and suffering animal." Is it right that such a state of things should exist when there is, as the experience of other countries has shown, a profitable, feasible, and honorable remedy? Is there any one who does not believe that animals suffer as acutely as men from physical pain, or that their diseases, if properly understood by the person in attendance on them, are any the less amenable to treatment?

Education and Rural Matters.

Editors American Farmer:

As soon as we are large enough, in view that we must do somewhat in after life, our parents send us to school and there they keep us until we understand the rudimentary principles of education. Very often they send their children to academies and colleges, where they obtain certificates of proficiency or diplomas. They do not often stop there, but place them where they may obtain knowledge of professions, &c.

It appears to us that care should be taken that the education of those intended for farming, merchandising and trades, should have such an education as to enable them to investigate, analyze and apply to their different callings such knowledge as would make them able to find out and use the best means to accomplish success. The man of education is better prepared to succeed in life than the illiterate. With knowledge you have a treasury to draw upon; without it you will only be able to proceed by slow degrees, gaining a standing by experience and perseverance,—even in this there is encouragement. Those who have the knowledge and the means have the vantage ground; they need not so much instruction and encouragement as others not so well off. As farming is scientific as well as practical, and is to be learned by labor and observation, success is within the reach of the average man of capacity and industry. Let him make his calling and election sure by going to work right. If he is not versed in the practical part, let him learn of others and let his charts be an agricultural magazine and an elementary work on agricultural chemistry. He cannot expect to do as well as older farmers, but he must try to do better and better each succeeding year. He must not be discouraged by an occasional or partial failure, but by perseverance and improving he is almost certain to succeed. No one or few get rich and celebrated at the very start; they must undergo a state of probation and work out their standing by patience and perseverance. At the same time they must be honest and courteous. There is good sense required in farming as in anything else, and a good sensible farmer is as useful a member of society as any other. The wealth of the country is to a considerable extent in its land. There is a value in its surface for agricultural purposes and in its bowels are contained rich metals and minerals. The farmer's province is to provide the bread and meat with which life is sustained. With life, health, knowledge and industry, the whole machinery of living on land and water is put in motion, and the wealth of nations transported to and fro.

A farmer can begin on quite a small scale, with a small house, a garden spot, kitchen, some shelters for implements, horses and cattle; some little help for in-doors and out; some money and credit; by industry, economy and judgment he will command the respect of the community.—Good conduct and success will ensure the confidence of his neighbors both male and female. If married, his family will make friends; if single, he will be made happy by matrimony, because the ladies know it is not good for man to be alone. Soon a better state of things will obtain. The wilderness will blossom as the rose—a new house or the old one enlarged; the garden tastefully arranged and flowers cultivated. The country abounds, too, in something besides grain, fruits, trees, &c. It is health, salubrious air, healthful exercise, unambitious views, all tend to produce equanimity and satisfaction. The manners of the country are simple and unostentatious; its hospitality unselfish. Some of the best men of the cities were country-raised, and not a few resort to the country for its salubrious air and sylvan shades. We will add the following desiderata:

"A nice little farm well tilled,
A nice little house well filled,
And a nice little wife well willed."

You talk about elysiums; if there is any on earth it is there! PHILO.

Jefferson County, West Virginia.

Our French Letter.

Science in Agriculture.

Messrs. Editors American Farmer:

A circumstance very prominent in connection with continental agriculture, is the number of eminent scientific men who devote attention to its study. The desire evidently is, to control the experiments of the laboratory by the experiences of the farm. Pure practice, alone, better than pure science, can only be improved by this united system of work. The domain selected for scientific investigation in Germany and in France, is the rearing and feeding of stock, because here discoveries and ameliorations can be more immediately revealed and effected, and the practical fruits sooner reaped. Liebig, who broached so many ideas, did not overlook the important one of animal nutrition; but they are the views of Boussingault on this subject which are more generally adopted in order to elucidate the mysteries of the nutritive changes which are accomplished in the living body, as founded upon the laws of rational alimentation. Hitherto we were most occupied with what stock eat; to-day the important point is not exactly what they consume, as how they assimilate it. "It is not what is eaten that nourishes, but what is digested;" hence, very naturally, investigation is being carried on to ascertain the degree of digestibility, with the various races of animals, and the fluctuating circumstances capable of increasing or retarding that function. Now, one of the most important of these circumstances is the nutritive relation between the nitrogenous and the non-nitrogenous matters. The more this relationship is narrowed, that is to say, the more the feed contains of protein, for a certain quantity of carbonaceous matter, the more the food is utilized in the process of digestion. For the farmer's interests it suffices not that his stock digest well what they eat, but it is essential that they derive the most profit from the digestive functions and the end they fulfil. Mere digestion does not ensure the useful employment of the food. For example, it is now known, that the aptitude for fattening so remarkably developed among several precocious races is not founded upon superiority in digestive functions. All animals of the same species differ little in this respect, but upon a greater power of assimilation. In other words, tardy races live from day to day, expending what they receive,

while precocious breeds reduce their organic wants to an indispensable minimum, accumulating rapidly their savings in the form of meat and fat. Further, it has been ascertained, that precocious races are enabled to achieve this double advantage—small expenditure, and great savings in the *utilization of digestion*, owing to their relatively smaller lung superficies as compared with tardy breeds; Professor Sanson has also demonstrated, that living weight for weight, the precocious eliminate less carbonic acid than backward races.

Fertilizer Economies.

The scum from the sugar-beet factories can be employed as a manure, and thus utilize the small percentage of nitrogen that it contains. But it would be well first to convert, by means of sulphuric acid, whatever sugar remains in the scum into alcohol,—one ton of scum yielding 26 quarts of alcohol; the residue after distillation will still contain the salts of ammonia and the soluble azotised matters. Judge Belenet, of Algeria, claims to have obtained important results from the use of granite and porphyry dust as a manure, which contain from 10 to 15 per cent. of potash, and have the property of fixing atmospheric ammonia.

Fodder Plants.

White mustard has been largely sown this autumn as an aid to meet the penury generally existing in respect to fodder. It is so relished by milch cows that many peasants call it "the butter plant." It is sown in August, on the stubble, if the soil be friable, and harrowed in, or sometimes the soil is turned over with a skim polysock plough, 5 lbs. of seed to the acre; the plant can be consumed green till the frost arrives. Respecting the preservation of green maize in trenches, discussion no longer takes place as to the utility or practicability of the process, but as to the stage when the maize ought to be cut; one party advocates the cutting when the plant is in flower, and another before the flowers even show; the majority inclines to the first view, as the maize is then not only richer in nutritive principles, but these principles are more uniformly distributed in the plant.

Changes of Farm Systems.

French agriculture is, at this moment, passing through a crisis, possessing features and lessons of not a little general interest. Not unfrequently the agriculturist adopts a system of cultivation in which he counts to reap prosperity, and finds his hopes deceived; it often happens that after he has for a long time enjoyed success in producing a certain crop he suddenly finds that there is no demand for his harvest. He must then change the processes of his farming. The farmers in several departments of the south of France are at present in the second dilemma; hitherto they have been prosperous in the culture of madder, but the prices for this plant have so diminished, owing to chemistry having discovered an equally excellent dye, that the culture of madder is not to be thought of. Then the phylloxera destroys the vineyards at the same time. The absence of water, of canals, for irrigating purposes, prevents the raising of forage and the keeping consequently of stock, and the latter is ever in demand. The farmers are falling back on the culture of clover, grasses, and other plants for their seeds for general exportation.

The Wine Crop and the Phylloxera.

The Gironde has ever been famous for its wine, and there are not a few for whom Saint Emilion, Medoc and Sauterne are names familiar as household words. The department has 325,000 acres under vineyards, producing annually 66 million gallons of wine. Many think that all wines under the name of "Bordeaux" or claret are alike, but this is a great error, as even in the centres of districts famed for their vintage, the quality of the wine is often inferior. This anomaly is explained by the difference in the soil, above all in the sub-soil—the latter playing a preponderating part in the quality of the products. The best wines are obtained from the vineyards situated on the slightly elevated banks of the river Gironde, with a sandy surface, and, above all, a pebbly sub-soil. Well, in this rich garden of France, the phylloxera has made its appearance, and the anxiety of the proprietors of vineyards is profound. No efficacious remedy has yet been found to check the ravages of the bug, save flooding the vines to the height of twelve inches, after the vintage. Toxical agents, in addition to not being certain, are costly and difficult of application. The employment of American stocks as a means to furnish roots resisting the bug, increases in favor in the south of France, shoots from the fine native vines being grafted thereon; the *écusson* plan of grafting, as practiced by M. Hortolés, being that in general use. The stock Jaques is almost invulnerable to the attacks of the phylloxera. In Wurtemburg, however, where American stocks have been employed, all have succumbed, save the *Isabelle*.

The Beet Crop.

The French Association for the advancement of Sciences has opened its annual congress, by an important discussion on beet root. Does the stripping the root of some of its leaves, for feeding purposes, affect its saccharine richness? M. Corenwinder replies affirmatively, and to the extent of 4 to 5 per cent. The removal of leaves induces a development of new ones, which absorb the elements of the carbon destined to form the sugar; also, roots with small leaves, he asserts, are less rich in sugar than a beet with large leaves. M. Claude Bernard, perhaps the first scientific authority of the day, asserts that even supposing it to be true, that the leaves eat the sugar, it is not established that they form it.—How, then, is formed that carbon, which produces the sugar? He cannot precisely explain the phenomenon, but thinks it can be absorbed by the roots, and as there is a great similarity between animals and vegetables, it is quite possible that sugar is formed in the economy of the plant, as is the case with the animal.

Spring and Fall-Sown Grain.

Spring sowings of grain are falling into disfavor in this country, because in the months of April and May drought almost invariably exists; then winter sowings are able to husband the moisture in the soil, derived from the winter rains, by their vegetation forming a screen. Prof. Haberlandt has published the results of a series of experiments respecting the sowing of wheat, rye, barley and oats in spring, from the com-

mencement of May till the end of June, at intervals of a week, and watering all alike; the yield in grain, in the case of wheat and rye, had diminished, while the straw and the chaff augmented; ergot attacked the rye and rust the wheat, and while insects invaded the later sowings they kept aloof from such as were earliest made.

M. Majon has successfully freed his lucerne from dodder, by leaving, at mowing time, the parts of the field affected uncut. He then encloses sheep on these spots till the lucerne is eaten down, without, however, injuring the crowns of the plant. If some of these even be destroyed the luxuriant growth of what remains will prove an ample compensation.

The question of the relative value of beet-pulp has since some time been a fertile source of dispute. Dr. Kühn asserts that there is not much difference, in a nutritive point of view, between cattle and sugar beets, but there is a notable difference in the value of the pulp according to the process adopted for the extraction of the juice; that is to say, the machinery employed. The hydraulic press yields a pulp *twice as nutritive* as that produced by the continuous press, both employed in France; 30 lbs. of hydraulic pulp Dr. Kühn values as the equivalent of 50 lbs. of feeding beet. Care ought to be taken that the pulp purchased be exempt from foreign matters, such as hyposulphite of lime.

To prolong the duration of ropes and retard their decay, steep them in a solution of sulphate of copper, an ounce to a quart of water, and then either tar them or immerse them in soap-suds—4 ounces of soap per quart of water. In the latter case there is no smell. F. C.

Paris, September 21, 1876.

German Potash Salts.

Prof. W. O. Atwater, in the *American Agriculturist*, for October, says, regarding these sources of supply of potash for agricultural purposes, that where rightly used on soils deficient in potash they are very profitable fertilizers, but that the results depend not only upon the differing character of the salts, but also on the kind of soil, the method of application, and the kind of crop.

As taken from the mines, these salts contain only small proportions of potash compounds, the bulk consisting of other materials, comparatively of little agricultural value, and sometimes positively injurious. These crude salts, except, perhaps Kainit, have never given successful results from their use; and it has been found necessary to subject them to chemical treatment, by which the potash compounds are more or less purified. As prepared near the mines for market, these salts contain potassium in the form of either chloride of potassium, or sulphate of potash; and along with these, chloride of sodium, chloride of magnesium, sulphate of soda and sulphate of magnesia. The kinds and amounts of the potash and other compounds vary with the different brands. The chloride of sodium (common salt) is sometimes beneficial to crops and sometimes otherwise; and the sulphate of magnesia is often very useful; but the chloride of magnesium, when present in considerable quantities, is apt to be positively harmful.

High and Low Grades—Sulphates and Chlorides.

Besides these concentrated salts a number of lower grade, either waste products from the purifying processes, or in their original form as dug from the mines, are sold for fertilizers. These are known, according as the potassium occurs, as sulphate or chloride of potassium, as *Sulphates* or *Chlorides* (*Muriates*.) It is customary to reckon the potassium in all as "actual potash." By this is understood the amount of pure potash or potassa, which is either present as such in the salt, or would be if all the potassium present were in that form. The amount of actual potash varies in the different grades, from 7 or 8 per cent. in the lowest to 50 per cent. or more in the highest. Unfortunately a large part of the salts imported are of the lower grades, and the disadvantage in purchasing these is a double one; they furnishing very little potash, the bulk being made up of other inferior or injurious compounds, and the purchaser has to pay the cost of freight and handling this extra material from the mines in Germany to his farm.

Use of the German Potash Salts—Kinds to Select.

It is clear that for this side of the Atlantic the high grades must be the most economical as potash fertilizers. The *Sulphates* are, on the whole, preferable, but the potassium in these is more costly than in the *chlorides*. The *chlorides* sometimes injure the burning quality of the leaf of tobacco, decrease the amount of starch in potatoes and make them less mealy than is desirable, and decrease likewise the amount of sugar in sugar-beets. The sulphates, on the other hand, are always safe. They increase the quantity of the crops as much as the chlorides, without injuring, indeed often improving the quality. For buckwheat, corn, wheat, oats, and other grains, for grasses, and for wet soils, the chlorides are very highly recommended, and, because of their cheapness, often to be preferred to the sulphates. To the lower grades, which contain large quantities of chloride of sodium, and sometimes of chloride of magnesium, the same objection would obtain as to the chlorides of potassium, but in greater degree. Generally speaking, the most desirable grades for our American farmers will probably be:

For Sulphates: either the highest grades, which contain from 75 to 90 per cent. or more of sulphate of potash, corresponding to from 40 to 50 per cent. of actual potash; or the sulphate of potash and magnesia, which contains 54 to 57 per cent. of sulphate of potash, and 34 to 38 per cent. of sulphate of magnesia.

For Chlorides: the "muriate" with 80 to 85 per cent. of chloride of potassium, corresponding to 50–52 per cent. of potash.

None of these salts have any considerable amount of chloride of sodium or magnesium. There is a grade of so-called "Prepared Kainit," which contains some 29–33 per cent. of sulphate of potash, which may also be recommended.

Where and How to Apply Potash Salts.

Whether a given soil is deficient in potash or not, is a matter that can best be learned by actual trial of potassic fertilizers. A great deal

of care is necessary with these manures. Many failures result from misapplication. One cardinal point to be observed is the necessity of having the potash evenly and deeply distributed through the soil. To this end the potash fertilizers should be applied as long as possible before the seed is put in, either in very early spring, or, still better, in the previous autumn, for a spring or summer crop. It is an excellent plan to compost or mix them with earth before using. They should be either plowed or harrowed in. Potash salts are generally most useful when applied with phosphates and nitrogenous manures. In Germany, where the potash salts have come into general use, quantities corresponding to 200 to 500 pounds of the higher grades, and from 300 to 600 pounds of the lower grades to the acre are recommended. They have been found particularly good for grass, clover and other fodder crops, for beans and peas, tobacco, flax, grains and root crops.

A Compost for Cotton and Corn.

A correspondent of the *Scientific Farmer* says he is hoeing up from 1 to 2 inches of the top of the ground, virgin soil, with the leaves and straw, and wants to compost it in some way to make it available on his crops next spring, and asks the editor's advice. In reply he says:

A cheap and effective way would be to mix, in a large heap, with stable manure, or better, to use in the stable and barnyard and hog pens, as bedding and absorbents of the liquids, thus the material would get well mixed with the manure; saving the latter and by just so much improving the former. If then a compost heap is made of the thus combined materials, and forked over a few times, the coarse leaves and straw will become decomposed and fitted for use on the crops. Another good method is to pile the material together, incorporating from two to five bushels of slacked lime per cord, and shovel it over once or twice, to mix thoroughly and to forward and control the heating. The lime will act to decompose the organic matter of the mass, while the earthy portion will retain the volatile matters thrown off during the heating. The compost should stand before using one or two months, till the coarse matter is thoroughly decomposed.

German Millet.

Col. F. B. Steiner, of this city, who has a farm in Anne Arundel Co., recently left with us a sample of a crop he has raised there of this forage plant, the straw of which measures some four and a half feet, the heads being very large and well filled with seed. He estimates that from 4½ acres, less one-fifth of an acre reserved to perfect the seed, he cut 13 tons of hay, which is eaten with great relish by his horses and cows, agreeing excellently with both. The small plot reserved for seed will probably yield at the rate of 40 bushels to the acre, though the hay will not be so palatable to stock, nor so nutritious of course as that cut before the seed ripened. The land was sown at about the rate of a bushel of seed to the acre, and Col. Steiner seems to think the plant far superior to Hungarian, and, as we believe, cost and trouble considered, to fodder corn.

This result coincides with our own experience. Our millet was cut before the seed fully matured, and proved itself an excellent and quickly-grown forage crop.

We should be glad to know if other trials have been equally successful.

Orchard Grass in Virginia.

Judge Fullerton writes as follows about this grass to the *Southern Planter*:

Colonel Washington's views on orchard grass, in the September number, square with my own experience. The seed should be sown the first week of September, or so as to catch the first of the Autumn rains, and if the land is *rich* a fine crop may be expected the following Summer; but I would not sow it with grain. I have for many years past sowed all my grass seed without a grain crop, and my success has proven the wisdom of the plan. The grass crop is the more important, and why should it be maltreated by being grown with grain, which ripens its seed and exhausts the soil? The extra production of grass the first year, where grown alone, is worth, in nine cases out of ten, more than the value of the grain which would be obtained from the same ground when grown with it. And I would not sow orchard grass *alone* unless I desired to save the seed. Clover sown at the same time, in any part of Virginia, will survive the Winter. It will be fit to cut at the same time with the orchard grass, and together they will make as good hay as any farmer ever put in his barn.

I have often wondered why orchard grass is not more generally cultivated in Virginia. It possesses many advantages over all other grasses. It is the *earliest* grass grown. It makes a good bite for cattle in the Spring, before any other has obtained a sufficient size (if pasture is desired), and it *has no equal in withstanding a drouth*. In *very* rich soil it can be cut three times in a favorable season, and if properly top-dressed will last many years.

No crop pays better for high manuring. They who have not tried it would be astonished to see the amount of forage that can be obtained per acre where the land is made thoroughly rich.

One of the most common mistakes made in putting down orchard grass is in sowing too little seed. It has a strong tendency to form *tussocks*, and although, when full grown, it will appear as if they occupied the whole surface, yet there will be a large percentage of the ground producing nothing, thereby involving loss. A farmer cannot afford to have any part of a cultivative field unproductive. This difficulty should therefore be avoided, for it is not possible *to re-seed the bare* places, as can be done with the other grasses, without plowing up the whole field.

There are two ways of accomplishing this object: First, by sowing clover with the orchard

grass, so that the spaces between the tussocks shall be occupied; or second, by *thick seeding*. When I do *not* sow clover with it I use more of the orchard grass seed and *sow it both ways of the land*. I am aware that this is expensive seeding, but a farmer will never get a better interest on his investment than by securing a *thoroughly* good stand of orchard grass on rich soil.

I am glad to learn that the seed is grown in Virginia, and shall profit by it. I have suffered too many disappointments in getting bad seed not to avail myself of the opportunity of securing that which is reliable. Old seed will not germinate, and it is a waste of time and money to sow it. Many dealers mix old seed and new, thereby causing partial failure and serious loss.

A Heavy Yield of Oats.

Mr. J. T. Rice, of Upson county, raised this year 212½ bushels of oats on 1¾ acres of land This is a yield of 121 3-7 bushels to the acre, the largest that we ever heard of in the State. Mr. Rice writes us his method of raising this extraordinary yield, in response to our application: "In the first place my ground is rich. I broke my land with small, diamond-pointed ploughs, twice, good, deep and close. I then put on about forty bushels of cotton seed per acre, and sowed four bushels per acre of oats, and ploughed them in with a small turning-plough deep and close. I sowed the first of October and commenced grazing them in November with my milk cows. I had six head and kept them on them all the time, only when the land was too wet, up to the first of March, but I think that a little too long. I cut them the 27th of May. I believe that these oats can be made to make 200 bushels to the acre, and I am going to try them next year. They will not rust; and they will not make on poor land, but they will make on rich land. I believe the same manure put on them that is put on wheat to make ten or twelve bushels of wheat per acre, put on these oats will make fifty bushels per acre. They are the heaviest oats I ever saw. I made 212½ bushels on 1¾ acres.—*Atlanta, Ga., Constitution.*

Upland Rice.

The *Upland* or *Mountain Rice*, says the *New Orleans Home Journal*, is of a hardier kind than the Lowland, and not quite so long in the grain nor as white as the lowland rice. It may be raised wherever cotton will grow, and it is more productive than the watered rice, often giving one thousand eight hundred pounds of clean rice to the acre. It may be planted from the first of April to the first of June in this State, and the ground should be as low and moist as can be had to be susceptible of cultivation. It is usually planted in drills, or better, in hills. If in drills, the rows should be three feet apart; if in hills, the rows should be about three feet one way and about fifteen inches the other, so as to admit cultivation both ways.

Thus prepared, the unhulled or paddy rice should be planted at the rate of a peck to the acre, rarely more, as with a good stand it stools more than any other plant. Planted in hills, about four or five seed to the hill is enough.

It should be worked vigorously with a plough and hoe so as to be kept clean, until it shades the ground, when it will do to lay by. Some three ploughings and scrapings will answer. Thus cultivated, it yields enormously in good ground anywhere in the uplands, and will make from fifty to one hundred bushels of rough rice to the acre, in addition to the straw, which, if properly saved, all stock animals eat with avidity.

The rough rice may be threshed in a wheat thresher, or even on the bare floor with a flail, very fast.

The cultivation of upland rice should be extended.

Horticulture.

Tree-Planting in Cities.

Editors American Farmer:

In looking around our city I have often been struck with the unhealthy appearance of many of the shade trees which line our streets, and naturally have sought for the cause. Certainly it is not from atmospheric impurities, as we sometimes meet fine healthy specimens in the same localities with the "half dead and alive ones" before alluded to; so, consequently, we were induced to look into the root of the matter, and just there we find the cause of the whole trouble, which is simply lack of nutriment. We have watched some of our tree contractors at work, and have come to the conclusion that, if the poor trees were not very hard to kill, they could not survive at all. A few bricks are raised in the pavement, a few shovelsfull of clay scooped out sufficient to give cramped space for the roots, a barrowful of street sweepings tramped over them, and the bricks neatly replaced; then the contractor is ready for his money, and the trees may root or die, usually the latter. If they live to put forth a few green leaves with the genial showers of spring to gladden the eyes of the owner, the first hot month of summer brings disappointment and disgust, and the idea of shade trees in front of the home is abandoned.

Sympathy for property-owners who have been duped, and a desire to see the streets of our city adorned, has induced the writer to set down a few plain directions for those who want healthy shade trees. We would preface these directions with the old adage, "Any thing that is worth doing is worth doing well;" and trees to grow and flourish must have plenty of good soil from which to draw their nutriment. Therefore provide plenty of that, dig out at least one (1) cubic yard of dirt (equal to three cart-loads) for each tree to be planted, and then fill up with sod from an old pasture or common, mixing therewith one peck of coarse-ground bone, or the meat bones might be saved and used instead. Then go to some reliable nursery and select good healthy trees of the varieties preferred, have them lifted with plenty of roots, and planted as soon as possible; never allow the roots to be exposed long to the influence of the sun or wind, and when planted they should not be placed deeper in the soil than they originally stood. (Many trees are killed by deep planting.) Cut out all weak and

spindling branches, and shorten the stronger ones so that the trees will not have too much evaporating surface until the roots are able to supply the necessary nutriment. Watering, as a general thing, we do not practice, but in cities where trees are growing under pavement, it would be well to water two or three times a week in dry weather, soaking thoroughly whenever water is given. Many make the mistake of sprinkling the surface every day, which has a tendency to bring the roots near the surface, and then the least neglect causes the trees to suffer.

I will enumerate a few of the trees which thrive best, and are deemed most desirable for our streets:

First—We would mention the Silver Maple (Acer dasycarpum) which, for rapid growth, cleanliness, and exemption from the attacks of insects, cannot be surpassed; it, however, requires to be carefully pruned, for, if neglected in that respect, it is of a loose straggling habit; and cut too close, as we often see it, the young growths assume a pendant habit, which is not desirable and contrary to the natural habit of the tree.

Second—We would name the Lindens, the American (Tilea Americana) and the European (T. Europœa)—both fine symmetrical trees and beautiful when in bloom; not such rapid growers as the Silver Maple, nor so clean, as they shed their flowers and winged seeds during the entire summer; this fault is atoned for by the fact that they require very little trimming. The American White Ash seems to flourish well, and makes a graceful tree in our streets when well planted.

We are not prepared to discard the Silver Poplar (Populus alba) although it has the fault of throwing its roots near the surface, and when it attains some age the roots often displace the bricks. In the country we would never plant it, yet it possesses many good qualities, and for streets we recommend it. There are many other varieties which might be used with good effect, of which we may speak at some other time, but as this article already transcends the limits intended, we will close with a few general remarks.

We often regret the manner in which tree-planting is carried on in our streets. If property-owners would confer together and agree to plant some one variety on the street they are interested in, and adhere to that, we would in time see a beautiful uniformity in our streets, which would give evidence of design, and also have a more pleasing effect than the heterogeneous mixture we so often meet with. ARBORIST.

Peaches and Nectarines.

Editors American Farmer:

In your interesting number for August, I notice Mr. Wilkins' letter and your remarks on the Hale's Early producing nectarines.

There are plenty of facts on record showing (1) that the peach has borne nectarines; (2) that nectarine trees have borne peaches, and (3) that both have been found on the same limb, and even that fruits have been found half peach and half nectarine. Darwin, in his Animals and Plants under Domestication, vol. 1, page 410, gives numerous instances, and I could extend the list by reference to *The Horticulturist* and other authorities. The following is the passage from Darwin:—

"With respect to the more curious case of full-grown peach trees suddenly producing nectarines by bud variation (or sports, as they are called by gardeners,) the evidence is super-abundant; there is also good evidence of the same tree producing both peaches and nectarines, or half and half fruit—by the term I mean a fruit with the one-half a perfect peach and the other half a perfect nectarine.

Peter Collinson, in 1741, recorded the first case of a peach tree producing a nectarine, and in 1766 he added two other instances. In the same work the editor, Sir J. E. Smith, describes the more remarkable case of a tree in Norfolk which usually bore both perfect nectarines and perfect peaches; but during two seasons some of the fruit were half and half in nature.

Mr. Salisbury, in 1808, records six other cases of peach trees producing nectarines. Three of the varieties are named, viz: the Alberge, Belle Chevreuse, and Royal George. The latter tree seldom failed to produce both kinds of fruit. He gives another case of a half-and-half fruit:

At Radford, in Devonshire, a clingstone peach, purchased as the Chancellor, was planted in 1815, and in 1824, after having previously produced peaches alone, bore on one branch twelve nectarines; in 1825 the same branch yielded twenty-six nectarines, and in 1826 thirty-six nectarines, together with eighteen peaches. One of the peaches was almost as smooth on one side as a nectarine. The nectarines were as dark as, but smaller than, the Elruge.

At Beccles, a Royal George peach produced a fruit 'three parts of it being a peach and one part nectarine, quite distinct in appearance, as well as in flavor.' The lines of division were longitudinal, as represented in the engraving. A nectarine tree grew five yards from this tree.

Professor Chapman states that he has often seen in Virginia very old peach trees bearing nectarines.

A writer in the *Gardeners' Chronicle* says that a peach tree, planted fifteen years previously, produced this year a nectarine between two peaches. A nectarine tree grew close by. In 1844, a Vanguard peach tree produced, in the midst of its ordinary fruit, a single red Roman nectarine.

Mr. Culver is stated to have raised in the United States a seedling peach, which produced a mixed crop of both peaches and nectarines.

Near Dorking a branch of the Têton de Venus peach, which reproduces itself truly by seed, bore its own fruit, "so remarkable for its prominent point, and a nectarine rather smaller but well-formed, and quite round."

The previous cases all refer to peaches suddenly producing nectarines, but at Carclew the unique case occurred of a nectarine tree raised twenty years before from seed, and never grafted, producing a fruit half peach and half nectarine: subsequently it bore a perfect peach.

To sum up the foregoing facts: We have excellent evidence of peach stones producing nectarine trees, and of nectarine stones producing peach trees—of the same tree bearing peaches and nectarines—of peach trees suddenly producing by bud variation nectarines (such nectar-

ines reproducing nectarines by seed,) as well as fruit in part nectarine and in part peach,—and lastly of one nectarine tree first bearing half-and-half fruit, and subsequently true peaches. As the peach came into existence before the nectarine, it might have been expected from the law of reversion that nectarines would give birth, by bud variation or by seed, to peaches, oftener than peaches to nectarines; but this is by no means the case."

The peach appears to have more *variability*, perhaps, than any other fruit. It seems to be itself a descendant of the almond and its changes into red, yellow and white varieties of clingstone and freestone, and finally into a smooth-skinned nectarine, are all curious and strange if it came from one original. Truly yours,

W. C. FLAGG.

Secretary's Office,
American Pomological Society,
Moro, Ill., Sept., 1876.

The Horticultural Society.

Editors American Farmer:

As a natural consequence of my failure to attend the last annual exhibition of the "Maryland Horticultural Society," the account given of it in the *American Farmer* of present month has been perused with the "jealous care of the critic." At least I take exception to the course to which the Society seems inclined, viz: that of ignoring in its exhibitions, to a large extent, every other interest except the floral or plant. Now, while I would much like to see "The Maryland Horticultural Society" fulfil its mission in *deed* as well as in *word*, candor compels me to say, that as a "Horticultural Society," it thus far has been a failure—almost; but as a "plant show," a very creditable success. Now, I do not think the failure as a Horticultural Society due to the fact that there are too many plants, but because of too *small* a display in fruits and vegetables. What is the cause? Examine for a partial answer, if you please, the catalogue of premiums; it would appear as though the fruit interests rank as an abridged valedictory—botched in the abridging—in the annual exhibitions, while the great stay of the entire machinery is what? why plants, of course. If it (the Society) succeeds in making two plants or flowers grow where none grew before, somebody will be benefited, if not refined; but how (I appeal to the Executive Committee) about the great fruit interests of the State? Does the Society intend to stand aloof and instruct itself by the misfortunes or errors of fruit-growers, that it should properly have been prepared, to a large degree, to prevent? Can the Society take no action that will bring more exhibitors of fruit to its shows and more fruit with the exhibitors? True, it will, from the natural condition of circumstances, require better management—a little more effort—to accomplish this than to kindle enthusiasm among the florists and amateur plant-growers, for reasons obvious to all. Still, taking into consideration the dignity and standing of our yet-young Society, I ask, is it not worth considerable effort on the part of the Society to wreathe with success each class of the great interests it fosters and encourages?

Finally, cherishing the belief that ere another annual exhibition of the Society occurs, the irregularity above referred to will be duly considered and correction rendered by those in authority, I am, very respectfully,

Denton, Md., Oct. 17, 1876. J. W. KERR.

Views on Pear Blight.

At the September meeting of the Potomac Fruit Growers' Association, at which we had the good fortune to be present, after Mr. John Saul read his paper on pear culture, (given in the *American Farmer* of last month,) Dr. Brainerd, of the United States Patent Office, presented, from a committee to whom the subject had been referred, a report on pear-tree blight, a summary of which we give:

Accepting as true the theory (now opposed by many) of the ascent and descent of the sap in exogenous trees, the report says the alburnum is the layer or growth of the present year, which will form the sap-wood of the succeeding year; and this sap-wood may continue in activity for a number of years, and until the cells, forming its structure, become filled with mineral deposits, and become thereby heart-wood, and of no further use so far as the vitality of the tree is concerned; but giving strength to sustain the increasing weight of the growth. This sap-wood is made up of elongated cells, either joined end to end or overlapping each other, and filled during the growing season with crude sap, increasing in density from the roots to the leaves.

Convinced by microscopic examination that the blight was caused neither by insect depredations nor fungoid growths,—both being results, not causes, of its presence,—the Doctor concludes that the newly-formed cells of the *alburnum* have from some cause been ruptured, and the elaborated sap, destined for the support of the fruit and the perfecting of the new growth of wood, poured out into the interspaces of the cells, becoming coagulated and disorganized, and producing in the vegetable tissue a condition analagous to extravasion of blood in animal tissues. Under the microscope every vestige of cell formation was seen to be destroyed, and nothing remained but a dark, granulated mass, pushed out in rough and ragged portions through fissures in the bark. This appearance extended through the whole thickness of the alburnum, while the sap-wood beneath remained in a perfectly healthy state. The coagulated sap presented many shades of color, from a pearl to a dark brown; and the external bark and leaves looked as though scorched.

Two causes may produce this rupture and destruction of the newly-formed cells in the alburnum, and their action is sudden and certain. They are extreme heat and extreme cold. In the spring of 1875, along the Lake Shore fruit region, after the trees had put forth their leaves, a sudden fall of temperature from summer heat to 12 or 15 degrees below freezing killed outright every pear-tree in that extensive district. The trees in their external appearance seemed to have been killed by fire blight; that

is, they had the appearance of having been roasted in an oven. This is accounted for by the green and tender portions of the trees, especially the alburnum, being made up of cells, the membranous walls of which are very thin and delicate, and when the sap, with which the cells are always filled, is subjected to sudden expansion, by either high or low temperature, the cell walls become ruptured, and the sap, of course, runs out and is diffused among the tissues. A putrefactive condition follows and fungoid growths ensue, if other conditions are favorable.

To test the influence of heat, a vigorous and healthy branch of a pear-tree was subjected to an artificial heat of 108° F. for twenty minutes, the effect of which on leaves and soft tissues being identical, apparently, with blight from natural causes.

The tendency of blight to go "in streaks" through an orchard or nursery was noticed, the course of the blasting current being generally at right angles to the direct rays of the sun. Thus, if the injury is sustained in the afternoon the direction of the wave will be from north of west to south of east. Orchards, or single trees, upon a southern exposure were claimed to be much more liable to blight than those that extend to the north, and a number of instances were cited to illustrate the justness of the ground taken.

The pear being indigenous to the northern section of the temperate zone, and delighting most in northern aspects and situations protected from intense solar heat, its habits should be considered in attempting its acclimation in warmer localities. Deep cultivation around the trees is also to be deprecated as an evil. The roots of the pear-tree run near the surface, and deep plowing cuts off the supply of nourishment. An instance was cited where trees attacked by blight were restored to health by digging around the roots and mulching with coal ashes and broken bones mixed with good soil; at the same time digging a trench around the trees at the extremities of the roots, and filling it with broken bone and coal ashes.

If then, concluded the report, the blight of the pear-tree is caused by excessive solar heat rupturing the tender cells and allowing the elaborated sap to escape and become coagulated and dried, the remedy must be sought not in external applications to the injured parts, nor even in their excision, but in planting in suitable soils, and in situations that will afford protection from the devouring heat.

At a meeting of the Experimental Farmers' Club of Chester Co., Penna., Dr. E. Michener said, in treating this topic, that the spores of the pear blight fungus might be present in every orchard, but not develop until all the conditions are right. The change in the form and vitality of the pear may have been brought about by "hot-house culture," and by unnatural grafting on the quince. These are enervating influences, and, favored by climatic irregularities, productive of diseased conditions peculiarly adapted to the development of the fungus. Dr. M. recommends the abandonment of the "system of amalgamation," the dropping off of hybrids and the beginning, *de novo*, with pure and pristine stock. He argues that in hybrids there must be a constant antagonism between the discordant elements thus forced into unnatural union. The nutriment furnished through the blood or sap is not congenial to the delicate and sensitive organism which it is designed to nourish. This is manifested by their imperfect re-union, so commonly observed between the ligneous cells of the quince and the pear. The same probably occurs in all hybrids. The blood, or sap of the stock, does not readily enter and assimilate with the organism of the other. In proof of this, sections of four trees, grown on quince stocks, were presented, which had died from the effects of blight. There was an imperfect union between the kindred woods. They appear to be separated in many places by a film of bark, and are consequently easily broken asunder. Hence dwarfing the pear-tree is only another name for feeding with uncongenial food—starvation and premature decay—and is a fit preparation for blight, whether it shall prove to be itself a fungoid growth, or only the foster-parent of a fungus. The impurity and deficiency of blood or sap—the want of healthy nutrition—is sufficient to cause mortification and death from climatic changes.

The conduct of the nursery should be also radically changed. Let the young trees be fed and cultivated more in accordance with hygienic principles—in the same manner in which they ought to be when transplanted to the orchard. With these precautions your pear-trees might once more rival the endurance of those of the last century.

In conclusion, I propound to you the following questions:

1. Is blight proportionally more frequent and more fatal in dwarf trees than in standards?

2. Does it occur more frequently on one side of pear-trees than on the other, and on which side?

3. Is the scale or scab, so common on the trunks and larger branches of the pear-trees of this form, an incipient stage of blight, or especially connected with it, and is it more frequent on one side or aspect of the tree, and on which side?"

The Cultivation of Small Fruits for Market.

From the proceedings of the Missouri Horticultural Society for 1875, we give the following by Mr. John B. Brooks, of Hydesburg, Missouri:

Having been engaged in the cultivation of small fruits for the last fifteen years, I have decided, at the request of several friends, to give, in a short paper, my experience in the cultivation of Strawberries, Raspberries, Blackberries, &c. I know that this subject has been handled by very much abler pens than mine; nevertheless, there are but few men who have not in the course of time, discovered some little thing, that, if acted upon and communicated to others, may result in great benefit to all.

I will speak of strawberries first, as they are first to come into market; and for the best market berry will take the Wilson's Albany, having cultivated them from the commencement of my fruit growing; of course, the same treatment

will apply to nearly all strawberries. The ground should be well broke up, and smoothly raked or harrowed, and the plants set in a perfectly straight line, the rows three and a half feet apart and the plants one foot apart in the row. The best time to plant is as early in the spring as the condition of the soil will allow. Although it can be done in July and August, I do not see that there is much gained over the spring planting, for if the season is dry you may expect to lose quite a number of plants, unless a great deal of labor is expended in shading and watering every day, and if you have to replant, you have to run the cultivator between the rows and loosen up the soil again. With such a wet season as has just passed, summer planting will do, although that was an exception. I planted about a quarter of an acre in July, 1875, and I do not believe that I lost over a dozen plants. I planted the Wilson's Albany, Russell's Prolific, Green Prolific and Nicanor. By putting the rows three and a half feet apart, I have room to run my garden cultivator between the rows every time the weeds begin to show themselves, and then with a hoe cut them down between the plants. This can be done three or four times until the runners begin to strike root, and the weeds will then have to be pulled by hand. The runners should be made to run into the space between the rows; this can be done by raking them towards the space with a hand-rake. If this is properly attended to, the whole bed will be almost covered with plants by September. The plants should be protected during the winter with a light covering of straw. I always cover my plants as soon as the ground is frozen; a light covering is all that is necessary, for it is not the cold weather that injures the plants, but the frequent freezing and thawing of the ground, and the consequent heaving up of the plants. The straw should be left on the plants during the fruiting season, as it preserves the berries from being splashed at picking time, and by being partially rotted will retain moisture in the soil. There is nothing more to be done till the crop is ready to pick, which is about the first week in June. After the crop is picked, I stretch my line along the bed; and if it is a long distance, I take a warp around a short stake at every thirty or forty feet, so that the line will be kept perfectly straight. Two lines should be used, and placed three feet apart. Each line should be run exactly over the centre of the space that was left open the year previous; then with a small one-horse diamond plow, turn a furrow from the line down one side, and pass back along the other line, turning the second furrow up to the first, and covering the old plants, and leaving a row of new plants about a foot wide, in the centre of what was the open space the season previous, thereby renewing the whole bed every year, and getting the whole soil worked over. The soil thus thrown into a ridge should lay for two or three weeks to rot the plants, and then leveled down with the cultivator ready for the new runners. I have made it a practice during the last few years, a few weeks before the ground is frozen, of giving the whole bed a mulching of finely rotted manure, mostly composed of the rakings of the stable yard, and the remains of old manure heaps, thrown over with a shovel or scattered in a dry and dusty state, and have found it to be of great benefit. Sometimes the season is unfavorable to the growth of new plants, owing to the drouth, thereby preventing the runners from covering the space between the rows. In that case I let the bed remain over another season without plowing, but I have found that the trouble of weeding by hand, and the extra amount of hoeing to be done, with the "bayonet hoe," will not pay, besides the danger of having the bed overrun with that worst of all weeds to the strawberry grower, the White Dutch Clover.

My land is White Oak upland, and previous to being planted in fruit, had been planted with corn for nearly thirty years in succession, until it would grow corn no longer; but, by deep plowing, manuring and underdraining, it is now rich enough to raise any kind of fruit.

In regard to the profits of cultivating strawberries, I would state that in June, 1871, from one bed of plants, 140 feet long and 16 feet wide, and completely covered with plants, I picked and sold in the Hannibal market, 40 bushels of first quality berries, for which I received in cash $210.00, besides having a good-sized dishful on the table every day, as long as they lasted. The same season, I also took the first premium of the North Missouri Horticultural Society, of Hannibal, for the best quart of Wilson's Albany, picked from the same patch. I would further state, in regard to spring planting, that if planted early in the spring, a good many berries can be picked the same season.

I think, that it was in the spring of 1870, that I sold 1,400 plants to Mr. Kailey, who resided about two miles northwest of Hannibal, which he planted out in the first week in March. He paid $7.00 for the plants, and at the end of the second week in June he had sold $15.00 worth of fine berries. In conclusion, I would state, that the main point is to keep the weeds down, and protect in winter with straw. In speaking of straw, I have often thought that farmers, who can raise wheat, could not make any work that they do in winter pay better than to haul out their straw stacks on a windy day, and lightly scatter it over their wheat fields as far as it would go, for it takes but a light covering to prevent the heaving of the soil, and in addition, thereby returning to the soil further food for another crop. I think the labor would be amply repaid by the young plants being prevented from freezing out.

In the cultivation of raspberries for market, I find the Doolittle, Improved Black Cap, Golden Cap and Philadelphia, as good a selection as is necessary in this section. The rows should be at least six feet apart, and the plants four feet apart in the rows; thus giving the cultivator ample room to be run up and down between each row. The Black Caps and Golden Caps require stout stakes, about 3 or 4 feet long, to be driven in the ground about every 8 or 10 feet in the rows, with a light pole nailed to the top. Not more than four of the best canes should be left to fruit, and these should be spread out and tied to the poles to admit the air and sun. The canes should be trimmed to 5 feet in heighth. The Philadelphia does not require any stakes; the canes standing erect

without any support. During the season I keep the cultivator going between the rows, thus keeping the soil moist, and keeping the weeds down. In October or November I cut out the old canes, and fix up trellis for the following season. I throw up a little soil to the plants, and give them a good mulching of dead weeds, old straw and rough manure, as raspberry plants are very liable to be lifted up by freezing and thawing. The above treatment will apply in every particular to blackberries, currants, and gooseberry plants. In fact, in the cultivation of small fruits, I consider *mulching* to be of the utmost importance to secure regular and paying crops.

In picking berries for market, I use quart boxes, and these are given to the pickers, who fill them in the patch. The boxes are then packed into crates, holding 16 quarts. The fruit should be directly from the plants into the boxes, and should be handled but once. I have known growers who picked into pans and buckets, and then assorted the fruit before filling into boxes for market, but no one can expect to keep the confidence of the buyer long, who puts a few fine berries on the top of the box, and an inferior article beneath.

My experience with blackberries is that the Lawton bears the best, whenever the plants have not been winter-killed, which occurs about every third year, sometimes oftener. The Kittatinny does not suffer from winter-killing, and with me bore an excellent crop last season, while the Lawton did not bear any.

In concluding this essay, on the cultivation of a few of the luxuries to be obtained by any one having but a small piece of land, I have endeavored to show how it is possible for all to obtain, with but little trouble, fine fruit in abundance. Nothing in the form of diet will contribute better to the preservation of health during the heat of summer and the changes of autumn, than a regular and constant supply of good, well ripened fruit, partaken of in moderate quantities; and the table that is furnished with fresh or cooked fruits, needs but little of the more costly provisions from the butcher or confectioner.

In the cultivation of plums, of which I have an orchard of about 30 trees of 8 different kinds, I experienced disappointment every year from the ravages of the curculio, although the trees were loaded with plums. I did not get a ripe plum until three years previous to last summer, but since then I have had an abundance every year. The remedy is salt scattered under the trees, as far as the limbs extend. I scatter the salt about the time the bloom is falling, and the plums are about the size of peas; for the curculio begins his work as soon as he can find a plum large enough to bite. I also throw salt up among the branches, as a little will lodge there. I think one taste of salt is enough for the most ravenous of these pests. About half a bushel is enough for 20 trees. Another great enemy to the fruit-grower is the currant worm. These are easily destroyed, and kept from the currant and gooseberry bushes, by the use of white hellebore, which is to be had at the drug store. Use a tin box, with small holes punched in the lid, like a pepper box; fill with the powder, giving the bushes a moderate dredging about the time the berries are forming. The same treatment will destroy the vermin so troublesome to chickens, if dusted under their feathers, and will do them no harm.

Cultivation of the Raspberry.

This fruit is getting into favor more and more every season, and is worthy the attention of horticulturists. At a meeting of the New Jersey Horticultural Society, Wm. Parry, who is a well-known authority in small fruit growing, remarked, that there are two distinct species of the raspberry: *Rubus occidentalis*, which is propagated by the tip ends of the canes bending over and striking root in the ground, forming a new plant, which in turn sends out shoots, reaching still further from the original stock, and thus in a migratory way will soon spread over a considerable space of land, as if in search of new food in the virgin soil, to sustain the young plants, which do not spread or increase by sending up suckers from the roots. The purple raspberries are of this order, such as the old Purple Cane, Ellisdale, Catawissa, the White, Yellow, and Golden Caps, and Cream Raspberries, the Red Caps, Genargua, Norwood, and Rochelle; also the different varieties of black caps, such as Doolittle's Improved, the Early Cluster, Ontario, Little Miama, Big Miama or McCormick, Davison's Thornless, Hamilton, Nebraska, Naglee's Everbearing, Seneca, Gordon's Great Western, the Yosemite of California Mammoth Cluster, Ohio Everbearing, Canada and Lum's Everbearing. All native varieties.

The other species is called *Rubus strigosus*, an upright grower, is increased by suckers from the root, or by planting root-cuttings, and some of them throw up suckers so abundantly as to become troublesome, filling the ground with young canes, which crowd the bearing plants, and injure the crop of fruit.

Among those grown may be mentioned the following, viz: Alpine Red, Allen's Antwerp, and Allen's Straight Cane, Belle de Fontenay, (recently called Amazon,) Belle of Jersey, Brandywine, or Susqueco, Bristol, Bagley's Perpetual, Baker, Brinckle's Seedlings, viz: The Orange, Cushing, Col. Wilder, Woodward, Walker, and Vice President French, Clark, Creton Red, Delaware, Duhring, Downing's Seedlings, Dr. Linton, Elm City, Early Antwerp, Early Andrews and Elizabeth, Fastolff, Franconia, Grant, Hornet, Herstine, Hudson River Antwerp, Highland Hardy, Kirtland and Knevett's Giant, Lindley's Fastolff, Seedling Imperial Red, Marvel of Four Seasons, Northumberland, Fillbasket, Naomi, Northern Wonder, Ohio Red, Arnold's Orange, Parnell, Pearl, Prosser, Philadelphia, Red Prolific, Rivers' Large Fruited Monthly, Red Antwerp, Red Queen and Ruby, R. M. Conklin's French, Stoover, Southern Thornless, Saunders, Turner, Thunderer, True Everbearing Red, Wauregon and Yellow Antwerp.

Where the climate is suitable, raspberries will succeed well on almost any loam land that will produce good crops of corn and wheat. As a general rule the *Rubus occidentalis* will do better on light sandy soil than the *strigosus*, hence the

great popularity of the cap varieties in some sections where red raspberries do not succeed. A cool moist situation, inclining to the north, is preferable; it should be thoroughly drained; raspberries will not thrive with wet feet. The soil should be well supplied with manure and fertilizers; ground bone, phosphates and hair manure are excellent.

Plow and prepare the ground in the Fall; open deep furrows six feet apart; during Winter, haul muck and spread along the furrows freely. As early in the Spring as practicable, take small young plants and set them along the rows on the muck, to average about two feet apart, requiring 3,630 plants per acre.

Cover the roots with a small plow, going once around each row. Then follow after, treading the ground firm around each plant, while holding the top straight, which should be cut off near the ground so as not to exhaust the roots in supporting leaves and fruit the first Summer.

Potatoes or other vegetables may, with advantage, be grown between the rows the first year, after which the raspberries will require the whole space. The old wood which has borne fruit should be removed before the following Spring, and the young canes shortened in about one-third their length so they will stand firm and erect, bearing heavy crops of fruit without stakes, trellises or supports of any kind.

Although in some cases 200 bushels per acre have been grown, yet as a general rule about one-third of that amount, or 2,000 quarts would be a safer estimate; and by taking the average price, twenty cents per quart, for thirteen years past, it gives the following result per acre:

Commissions at ten per cent	$40
Picking at three cents per quart	60
Interest on land	10
Manure and boxes	30
Cultivation, incidentals, &c	30
Net profit per acre	230
Gross sales 2,000 quarts at 20 cents	$400

The Vineyard.

Grape-Growing and Wine-Making.

Messrs. Editors American Farmer:

In answer to yours will say that with pleasure I will occasionally contribute to the *Farmer* if you really think that my remarks are of interest to its readers.

You have such an able corps of correspondents on all branches of agriculture and most of fruit-culture, that I feel like leaving those topics to them, limiting myself only to grape-culture and the manufacture of wine, in which I am also pretty largely interested.

Would it not be a good plan to open a regular vineyard department in your paper and to appeal to the grape-growers among your readers to send in statistics of how many acres are cultivated in their neighborhoods, what varieties, when planted, how the different kinds succeeded, and if they are raising the grapes for market or wine?

Such reports would not only be interesting and useful to all grape-growers, but being easily written will probably bring out a number of persons. Questions would follow which might be answered by one or the other through your paper, thus supplying a want greatly felt in grape literature.

Quite a number of vineyards have been planted with the view of shipping the fruit to the Northern markets, which paid pretty well in years gone by; but the present season, with its low prices, must have almost discouraged many a vineyardist, and should more such years follow it will dishearten the most enthusiastic one unless we turn our attention more to the manufacture of wines, which is already successfully carried on by several parties in your State as well as in Virginia.

All these points would open a wide field for questions which I should like to see freely discussed in your paper, and will cheerfully do my part towards it, if my German style of writing is no objection. Yours truly,

C. A. HEINEKEN.

Prince William Co., Va., October, 1876.

[We are always glad to hear from Mr. Heineken, and are unable to perceive any German idiom which in the slightest clouds the meaning of what he is endeavoring to make clear. We hope he will often permit our readers to have the benefit of his skill and experience.

His suggestion is worthy of being carried out, and we shall be glad to give the space needed for it, in the hope that those concerned in the vineyard interest will contribute to show its importance and extent, not only by recording the statistics indicated but by the practical treatment of questions coming up every day in the cultivation of the grape.—*Ed. A. F.*]

Fine New Grapes.

We lately had the pleasure of meeting in this city Mr. George Husmann, of Missouri, well known as a vineyardist and a writer on grape and wine making. He had been examining the nurseries of Mr. John Cook, and seemed to have formed a good opinion of the new black seedling of that gentleman, which he considers very handsome in appearance and at least of good quality.

For the Western country, Mr. H. considers the coming grape to be the *Elvira*. This is a seedling of the Taylor, of a whitish or pale greenish color, with very thin skin, the berry and bunch both medium in size, and the pulp described as very sweet, juicy and tender, as well as of fine flavor. This opinion of its merits is also held by Messrs. Bush, Son & Meissner, of Missouri, who consider it the most promising white wine grape and who have largely disseminated it.

☞ WE have received enough of the June and September numbers to answer our purpose, and no more need be sent. Those who responded to our request for them will please accept our thanks.

Floriculture, &c.—November, 1876.

By W. D. BRACKENRIDGE, Florist and Nurseryman
Govanstown, Baltimore county, Md.

Lawn and Pleasure Ground.

Indian summer to us is truly a delightful season of the year, the air being balmy by day from the odor arising from the fallen foliage, and just bracing enough at night to make life agreeable. Before this time, all tender plants we wish to preserve have been placed securely under cover, and many of those left in the ground, that are deemed hardy, will come up better in spring if only partially protected. Herbaceous plants in their native habitats have the crowns of the stock covered by annual decayed foliage; and this can be imitated by sprinkling over them an inch or two deep of oak or other leaves; and to keep these from being blown away, a little light earth or some branches can be placed over them; if the ground is poor, a dressing of loose stable manure will answer a good purpose in winter, and in spring can be turned under to enrich the beds. Tender shrubs, and such plants as the Pampas grass, we protect with cedar or pine branches stuck in the ground all round, but thickest on the *south* side; under cover of the branches we sprinkle in some leaves. Where there is only a single plant of the Pampas Grass, it is a good plan to place an empty flour barrel over it, as the young crowns are subject to rot by overmuch wet.

Take up roots of Gladioli, Tuberoses, Mexican Tiger-flowers and Caladiums, all of which should be cleaned and dried carefully before storing away in a place that is temperate and dry. Dahlia and Madeira Vine roots withstand more moisture and a lower temperature, until such times in spring as they are wanted to be started for propagation.

All flower beds and borders are benefited by being now turned over,—in the way gardeners term "rough digging,"—the frosts will thus pulverize the soil, and tend to kill the larvæ of insects; and should any water lodge in your beds, then set about sinking drains to carry it off at once, as nothing is more prejudicial to the growth of the majority of plants, than stagnated water; a little observation will convince any one of the truth of the above assertion. We are not strong in our belief, that recent manures are suitable for flower beds; but prefer an old compost made up of decayed leaves, cow manure and sand, but if your land is light, then the sand may be omitted; heavy manuring for flowers causes a luxuriance of foliage, followed by a sparseness of blossoms; or it may on the other hand kill them altogether by being too highly impregnated with ammoniacal salts. We would continue to plant shade trees and shrubs of the deciduous kinds; for directions in this, see last month's No. Furthermore under this head, we would advise preparation to be made now for next spring's planting of Evergreens, &c., by clearing, trenching and bringing the ground into good shape and condition, to be ready for action at the season when time is much more precious than now to the gardener; therefore we say, improve your time.

Greenhouse.

Do not keep up a high temperature now in the greenhouse proper, a range of 50 to 60 degrees will suit; for that of the plant-stove a heat of from 60 to 80 is all that is wanted. It will not be proper to indulge in giving plants much water at the roots at this season; a proper amount of humidity in the atmosphere may be kept up by placing iron pans on the pipes or flues, filled with water, and by sprinkling water daily on the pathways. Change the position of such plants as are growing towards the light by turning them round. You may still sow Pansy, Sweet Alyssum, Chinese Primrose and Mignonette seed, and after they appear above ground, set them close up to the glass. A few plants of Azaleas may be set in the warm house, for early blooms, as they force readily; not so with Camellias,—to have these last to bloom in the fall they must be forced into early growth in the spring, and if this practice is kept up for a few years, they may be had to flower in September. In England we have seen them in full flower in July, but that would be unseasonable here for our requirements. It is a good plan to make a sowing of Verbena seed; by this means some new sorts may be secured, and such seedlings are good for bedding out, being usually free from that plague, the *rust*.

Can any of your readers give a permanent cure for that disease? If so, I would like them to communicate the same to you for the benefit of all. I am willing to give my experience in the matter before another planting season comes round.

All half hardy plants, as Laurestinus, Pittosporums, Oleanders, &c., should be moved under cover; they will stand a few degrees of frost, but are better without it; a cellar provided with a little light is often made to answer the purpose; and in the same place we have wintered, with success, hundreds of Scarlet Geraniums, by simply cutting off the green succulent tops, and planting the roots thick in boxes of light, dry earth; in the same way the Coral tree roots may be preserved, requiring no water during the winter; all that in necessary is to keep them clean and see that Jack Frost don't get at them.

Plants for Bedding, &c.

Editors American Farmer:

Allow me to ask for what reason our Horticultural Society adds the following note to the premiums for twelve best Caladiums: "It is to be distinctly understood that only one plant is to be grown in a pot." As I understand this, it means that Caladiums must be grown to a single eye. For commercial purposes, this is doubtless all right, but is it fair to expect gardeners on private places to thus grow them. There could be no objection to the size of the pots being limited, say to ten inches; but while the present restriction is held upon private gardeners, there are some amongst them who will decline to exhibit rather than destroy the beauty of their plants.

If I wished to bloom Calla Lillies at any special season, I should probably treat them accordingly, but under present circumstances I am only too

glad of Calla blooms at any and all seasons; there are few plants when in flower equal to it for altar decoration. We are rarely without sufficient for the purpose—at the present have to spare. Sorry Mr. Massey is not more convenient, as I would much like to keep tally with him of the number of blooms cut from a given number of plants with both systems of culture. I like the dwarf Ageratums very well; ours this season from seed did not come quite even enough for our taste. Alternanthera paronychoides, and A. spathulata are good. Our old friend, Tagetes Signata Pumila, I do not like to find fault with, but if it bloomed a little earlier in the season, I think it would a'd to its value. Bring on those reliable pink bedding Geraniums, by all means.

In the sub-tropical line, one hardly knows what to say. Perhaps the *idea* is not well understood; at all events it is not popular. Of course there are places where this system cannot be adopted to any considerable extent, but even in situations where it might be used with excellent effect it seems seldom to be thought of. My own idea of sub-tropical gardening is to introduce more bloom, as Hollyhocks, Clematis, &c.; Celosia Japonica, four feet, good head, very bright; Plumbago capensis, a good bedder by the way; Abutilon Thompsonii, also a good bedder when kept down; but good plants when turned out, and kept growing liberally, make a good display in connection with the taller growing foliage plants. Why is the Yucca so persistently ignored, and the Agave, plain and variegated, easily wintered and very distinct in character? We do not mention these things as being more desirable than many others, but because we seldom see them used. We very much prefer, however, to hear the ideas of others upon this subject.

We have had two circular beds this summer—generally looked at from a distance—which have given good satisfaction; they were planted with alternate plants of Plumbago capensis, and Achyranthes, edged with a double row of scarlet and oak-leaved Geraniums. These plants, except the geranium, were turned out of ten and twelve inch pots, and the plumbago will be taken up for future use.

This is a departure from the European system perhaps, but we deem it unnecessary to follow in the track of any nation or person.

And now one word in regard to the English system of bedding out. How rarely do we hear any one who has seen a really good display of this style of flower gardening speak in any but the highest terms of its beauty. The requisites are plenty of plants; a general knowledge of propagation and plant-growing; skill in designing, with a fair idea of contrasting and blending of colors; and, over and above all this, a good general knowledge of floriculture is desirable, so that one may know the varieties of plants that succeed best for the purposes under consideration.

Notwithstanding all that may have been said in detraction of this style of planting flowers, it ever seemed to us to require more brains than any other form of which we have knowledge; in fact there is as much difference between designing and planting a geometrical flower garden, and the old way of sowing and planting here and there, almost hap-hazard, until the beds are full enough, as there is between mixing the colors and painting a landscape, and putting ready-mixed paint upon a barn.

We would not, however, omit the claim of the herbaceous border, and are much obliged to Mr. Massey for informing us of the improvement in our old-time friend Delphinium Formosum. There can really be no good reason why the better kinds of herbaceous plants should not be popular, embracing as they do colors and forms not found in our general bedding stuff, in this climate at least.

Perhaps one had better try as many kinds as convenient, retaining those which prove adapted to our wants and climate; for it is a fact well known to gardeners that a person may get into the cars and ride in a few hours into a climate so different from this, that the same varieties of plants under similar treatment have a very different effect. Take the Geranium and the Coleus as examples; we have had some of the dwarf compact free-flowering varieties of the former, and which succeed admirably as bedders in the north, do so indifferently that we have had to take them out in July and plant with something else,—not only having the extra trouble and losing the plants, but in all probability marring the entire design by having to fill in with something entirely different to what was at first intended.

With Coleus it seems necessary to put out small plants at good fair distances, thus leaving much of the soil bare and burning during the greater part of the summer. Good rains usually come early in August, and then the Coleus commence to grow in earnest, and, before frost comes, have grown out of all bounds. What we wished to remark, however, is, the neatest beds of Coleus here this season were planted out late in July. The question is, however, what can be used for the spring and early summer to precede Coleus? I can hardly find it in my heart to destroy Phlox Drummondii so early; Candytuft is too short-lived. What have your readers to say?

We omitted to mention in the proper connection, when speaking of Coleus, that the massed beds of Coleus here were on the 17th of September completely ruined, being literally blown up by the roots, whilst the neat little beds before referred to held their own, in spite of the elements, until the frost of the 12th inst.

I must bring this rambling paper to a close, hoping that—although of itself perhaps containing nothing of merit—it may draw out some of the hid-away ideas of your readers. N. F. F.

On Graft Hybrids.

Mr. Meehan, at its meeting in August in Buffalo, read before the American Association for the Advancement of Science, a paper under the above title, which, as settling, by direct experience, a much-mooted point, we give as published in the *Gardener's Monthly:*

Of late years an impression has prevailed that hybrids may be obtained by grafting as well as by seeds. Sachs makes no mention of this in his text-book, but it has had a place in the liter-

ture of horticulture for over a hundred years.—Bradley says that a variegated jasmine grafted on a common green stock infused the variegation throughout the whole plant; and there is an idea among some horticulturists that an intermixture in apples can be obtained by uniting two halves of different buds and grafting them together. Thousands of people have laughed at these notions. No one has tried them. But only a few years ago it was found that Bradley was right; and we have in cultivation new variegated forms of *abutilon*, as well as some other things originated by the graft process. During the past few years it has been asserted that new varieties of potatoes have originated in this way:—a tuber is taken and all the eyes cut out. A wedge with an eye of another kind is then inserted into the eyeless mass and planted. The results are said to be true hybrids. Many of our best physiologists doubt this. I have not seen these cases, but I must say the evidence offered is much stronger than much of that on which some popular theories have been built. I tried the split and grafting process, not believing it would result in hybridity. I merely wished to test the popular notion. I am pleased to be able to say now that it is correct. New varieties can be obtained in that way. I took the Rhode Island Greening and the Red Astrachan—two very distinct varieties of apples in every respect. The grafts with a single bud were split as near through the centre as possible, and a piece of each kind fitted together so as to appear one complete scion. Twelve of these were grafted; three grew; two of these have fruited; neither are Rhode Island Greening, and the two are unlike each other; one of these has a flower like the Rhode Island Greening, and the flower of the Red Astrachan is rosy and in many ways distinct from the large white one of the Rhode Island Greening; but the fruit is, in many respects, similar to that of the Red Astrachan. The second variety has the flower similar to that of the Rhode Island Greening, and the fruit somewhat the color of the Red Astrachan, ripening about the same time, but is but half the size, very much flattened, and with a slender stem near two inches long, and as much like that of a Siberian Crab as can be. There is no doubt but two varieties, distinct from their parents, and distinct from each other, have resulted from this graft process. Some may suppose that the union of a Red Astrachan and a Rhode Island Greening apple should result in producing an exact intermediate, and that the union of buds in several graft cases should each produce identically the same, and therefore the two distinct varieties from the same process be a surprise. But no two children of the same parents are exactly the same; and this is the experience of plant hybridists. Our fellow-member, Mr. W. Saunders, of London, Ontario, crossed the American gooseberry (Ribes Cynobasti) with the red Warrington, an English variety, but both with hairy fruit. The hybrid product has smooth fruit, thus introducing a character not extant in either parent. And as regards variety, I have myself, from one single berry of a fertilized Fuchsia, produced several score of plants, among which no two were alike. I do not know that there is any pomological value in the new varieties of apples I have raised, but I am delighted with the scientific results, proving that hybrids by bud-grafting is more than a popular delusion.

Cranberry Culture in Maryland.

The *Eastern Shoreman* says that the Cranberry farms in the vicinity of Salisbury will yield quite handsome returns this season. Mr. W. S. Parsons has secured about 30 bushels from the small lot he has in cultivation, and Messrs. Graham & Co. will get near 200 bushels from their grounds. These "cranberry bogs" are within the corporate limits of Salisbury.

Agricultural Calendar.

Work for the Month—November.

The shortening days admonish the farmer that his work must now be pushed ahead with vigor; not only that the coming winter may find everything prepared for its approach, but that the labors of the next spring may be anticipated and lightened. This season of Thanksgiving finds, we hope, every one of our readers blessed with abundant cause of gratitude for benefits received from Him who has promised that seed-time and harvest shall not fail.

Fall Grains.—It is to be hoped that the seeding of these has been accomplished. See to it that water furrows are properly made, that surface water may not remain on the plants, to cause their destruction by winter-killing.

Corn Crop.—This should be made safe, which it never is at this season until securely housed. The fodder ought to be carefully stacked.

Root Crops.—Sugar Beets, Mangels and Carrots ought to be harvested before hurt by frost. Flat Turnips and Ruta Bagas, especially the latter, may remain out longer. Parsnips need not be dug, except such as are needed for market or consumption, before spring; freezing in the ground improves them. Potatoes should be at once gathered, digging them only in dry weather, and putting them into the cellar with the least exposure to air and light, necessary to dry off superfluous moisture. A plan of preserving potatoes and other roots practiced by some, is to make them into conical piles, covering them first with straw and a thin coating of earth, adding other layers of earth as the weather gets colder. Trenches from 18 to 24 inches wide and a foot deep are convenient for keeping them.

Plowing.—Stiff clays and sod lands for spring crops are plowed with profit in the fall and winter. Not only is the work of the busier season of the spring thereby forwarded, but the action of the frosts and thawings is beneficial.

Tobacco.—In curing care should be had to exclude rains and high winds, which injure the crop, allowing the houses to be open only in clear, drying weather. Do not strip too soon; wait for the leaf stems to become dry. After that, the sooner the better. Pay particular attention to assorting and to tying up, a great

deal depending on the appearance of the samples in the market.

Live Stock.—Fattening hogs should be put up early, and as soon as accustomed to the change from a range to confinement, put them on full rations and push them on as fast as possible. Give once in a while messes of bran and soft feed; not forgetting an occasional handful of salt. Rotted wood or charcoal and ashes ought to be always provided in their pens, which should be kept clean and dry.

Milk cows ought to be made comfortable with good dry warm stabling. Give them now full feeds of meal or middlings. Roots should be carefully cut. Young cattle ought not to be exposed to storms, but should have sheds, at least, for their protection. Sheep ought also to have dry warm shelters, open to the south.

Horses should be regularly fed, cleaned and watered, and comfortably bedded. Give them good warm, but not too close quarters, and when practicable a loose box is very desirable.

Wagons, Gears, Implements, &c., ought to be looked over and needed repairs made before they are put away for the winter. Grease leather work before putting it up; and a thin coating of crude petroleum over both the metal and wood of tools will be efficient in preventing rust. The wood work may be afterwards painted.

Fire-wood.—See to it that full supplies are hauled before the weather gets too severe.

Planting Orchards.—Now is the time to set out trees if you have heeded our admonitions to make ready the ground, as we hope is the case. Nothing on the farm is more profitable, more enjoyable, or more conducive to health, than good fruit and abundance of it.

Vegetable Garden.

November.—Clean off the Asparagus stalks, if not already done, and give a good coating of manure. Air Cabbages in frames, and to those out of doors keep the earth drawn around close to the stalks. The same treatment applies to Cauliflowers. Those of this season not yet headed out may be heeled in in a cool cellar, or cold frame. Lettuce for frames should be planted now, taking care to give plenty of air, when the weather will allow. Root crops should be harvested, except such Parsnips as will not be needed till spring. Thin out Spinach and keep it clean; likewise German Sprouts. Have the ground cleared of all remnants of old crops, and when practicable plow or spade up all unoccupied space.

The Golden Trophy Tomato.

The past season has been the worst for tomatoes that I have ever known, and if it had not been for the seed of the Golden Trophy that you kindly sent me, I would for some time past not have had one single tomato per day, and even the Golden Trophy has borne very little although vigorous and well-grown plants. I find them the nicest as salad or sliced that I have ever grown, even nicer than the Dixie. I believe that although I have not cultivated them particularly, yet I have had more mushrooms than tomatoes, and yet I have 3 rows 105 feet long each, of plants of the latter. R. C.

South Carolina.

The Dairy.

How Cows should go into Winter Quarters.

Mr. Willard says:

Now we have said that an essential point in the wintering of dairy stock is to have the animals in good, thrifty condition, when they go into the stable at the commencement of winter. Deep milkers are apt to milk down thin in fall, and when there is a disposition to lose flesh in this way, it is always well to commence feeding ground grain, oat-meal, bran and ship stuffs; since it is much easier and less expensive to put on flesh in the fall, when the weather is comparatively warm, than in winter. If the animals go into the stables in good condition, and properly dried of their milk, they will continue to gain through the winter, on good hay alone. But if they get a daily ration of roots—either carrots, turnips, or mangolds—with a little straw to pick at from time to time as a change, they will come out in the spring in good, healthy serviceable condition. They must be fed and watered with regularity, and I prefer that the feeding be three times a day—morning, noon and night.

Maintaining the Full Flow of Milk.

During September and October they who have good cows and know how to make prime butter, should not allow the yield of milk to run down if it lies in their power to prevent it. As the pastures begin to fail in supplying food of the best quality for the production of milk, they should produce food from some other source. It is not well, as a general rule, to turn cattle into mown fields after haying, on account of the damage likely to be done to the next crop of hay. Still, if the grass was cut early and a second crop is abundant, it is well to allow cows to feed down the grass when it is in the best condition to produce milk. The supply of milk may be kept up in this way and an opportunity be given to get the pastures in better condition to produce feed. This may be done by the use of the scythe or mowing machine. The seed stalks of the grass will be cut as well as the weeds, thistles and bushes. When this is done the grass will be of better quality. By keeping the cattle out of the pasture a week or two after it is mown, they may be returned to it. At this time in the season it is well to cut the suckers out of the corn field on account of the advantage to the corn crop. No better use can be made of these than to feed them to the milch cows. It is also well to allow the cows a small feed of cornmeal or bran once a day. Cows often crave some sort of dry food at this time of the year. They relish an occasional feed of dry hay and derive a good deal of benefit from it. Of course attention should be given to the supply of salt and water. If insects are troublesome it is well to milk the cows in the barn. By attention of this kind the flow of milk may be kept up till the latter part of the growing season, when butter may be made that will keep till the next summer.—*New York Herald.*

Poultry Yard.

Feeding Young Fowls.

There are few farmers' wives who do not raise a flock of chicks every year without difficulty, but we have heerd many complain that they had tried turkey raising until they gave up in disgust.

As I have been remarkably successful with this most tender of all fowls, I will give my plan of feeding, which is, simply, *feed nothing raw.* I prefer feeding corn-bread made of unsifted meal and cold water. Make the dough stiff and bake in a slow oven until done, no more. If baked too long the crust will be hard, and if the meal is sifted the bread will be sticky. Enough can be baked at once to last several days, and is more convenient than mixing raw meal every feed. I think it well to feed all young fowls in this manner, but always found it *absolutely necessary* to bake bread for turkeys and common ducks. The Aylesbury are more hardy, but I follow my old plan and bake bread for them also. I have fifty seven at this writing that are growing nicely.

Lice are often the cause of death in young fowls, and must be got rid of before they will thrive well. I prefer using an ointment made by stewing tobacco in lard to anything else that I have tried. Anoint the breast and under part of the wings of the mother, and head and under parts of the young, and vermin will give you no further trouble.

If these simple directions are followed, together with housing until the sun is up and the dew is nearly gone in the morning and on stormy days, you will never fail to have a nice roast for Christmas.—*Cor. Prairie Farmer.*

Care of Young Poultry.

A correspondent of the *Country Gentleman* writes: "I have had fifty years' extensive experience with poultry, and can state positively there is no difficulty in keeping young and old healthy, and in raising ducks or turkeys if they are not coddled to death. The only obstacles are vermin, lice, (fleas in England,) rats, hawks, weasels, etc. Allow the broods perfect liberty with the mother, free after being cooped on some healthy ground away from the haunts of the old fowls for a day or two. Take the coop first and place it, then put the hen and brood in so that the chickens can pass out and in again at pleasure; then on the second or third day let the hen run around with the young ones and she will go in at night. The best coops have no bottoms, so that they can be moved into fresh, unstained ground daily. Water should stand all day in a shallow vessel let into the ground, so that nothing can be drowned.

A Cure for Gapes.

Shut up the young chickens indoors so that they cannot swallow more of the worms. Those in the windpipe may be extracted by a horse-hair doubled and twisted into a fine loop, or by a feather stripped to the quill excepting a small tuft at the end. This dipped in salt water or a weak solution of tobacco or of carbolic acid is passed down the windpipe, the opening of which may be seen in the root of the tongue, turned round several times and withdrawn with the worms attached. The affection may be prevented on the worst grounds by keeping the young chickens indoors and supplying only water that has been boiled or drawn from deep closed wells. For chicken mites remove all hen manure and thoroughly cleanse the roosts. Then sprinkle freely with a weak solution of crude carbolic acid or oil of tar.

The Apiary.

Care of Bees.

In most localities the season has yielded an unusual harvest of honey, and many hives which have been left to take care of themselves will be in bad condition for winter, by reason of their plentiful stores. Especially where the flow of honey has continued up to the first of September, no time should be lost in examining every hive, to see that room enough is left for the occupancy of brood. If every frame is filled with honey, except a shallow depth at the bottom of part of them, the colony will scarcely survive the winter. If any colonies need to be fed, no better use can be made of some of the frames of honey in the over-full colonies than to give them to those which have not sufficient stores for winter, returning empty combs in place of the full ones. If this cannot be done, then extract the honey from one or more of the combs, and have plenty of empty worker cells in the middle of the brood nest. Do not, however, go to the other extreme, and extract most of their honey, thinking there will be time enough for them to fill up, and if not they can be fed. There is nothing lost by leaving a liberal allowance of honey, and at this season of the year there should be at all times enough honey left in the hives, so that if a sharp frost comes and suddenly cuts off the harvest, there will be no necessity to feed for winter. If the yield should continue so as to fill up the hives again, it will be easy to extract again. We do not pretend to have fully solved the problem of wintering and springing bees, but are strongly of the opinion that one important factor in the problem is to have plenty of stores, and at the same time have plenty of room for the queen to lay. If more honey is left in the hive than will be used in wintering it will not be wasted, and in the spring the bees will increase their numbers more rapidly, if they feel that they have plenty. Better extract the overplus at the beginning of the harvest than to try to leave just as little as will carry the bees through.—*American Bee Journal.*

BEE ENEMIES.—Never put a swarm of bees in an old hive, as there will almost certainly be the eggs of the honey moth deposited in the crevices of the hive, which will hatch out and probably destroy the swarm. Nothing is more to be dreaded by the bee-keeper than the moth, and when they once gain an entrance to the hive the bees appear as if powerless to expel them, although they will seize them savagely at the entrance.

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The "Farmer's" Campaign.

By the time this number of the *American Farmer* reaches its most distant readers, the great political campaign, which has rocked the whole country to its very foundations, will have ended, and it should be the earnest prayer of every good citizen that with its conclusion the violence and angry passions to which it has given rise will have subsided, the country be again restored to its wonted equanimity, and that good feeling will be again resumed between our people in every section of our extended nationality.

Of course, during this protracted contest, whilst men's minds have been so distracted with the great issues which were at stake, but comparatively little could be expected to be accomplished by our friends in the way of obtaining subscribers for our journal; but the end of the political canvass being attained, we trust they will all everywhere engage in the more peaceful and friendly "canvass" in behalf of the old *Pioneer*, which has for more than half a century been kept steadily in the line of duty in its efforts to extend the blessings of peace and prosperity and plenty among the tillers of the soil.

This and the ensuing months is the time peculiarly fitted for this work, and we repeat our offer of last month, that all *new* subscribers will have their names entered on our books for the full year of 1877, with the addition of the three last numbers of the present year sent to them without any additional charge—this rule being applicable to clubs of five or more, as well as to single subscriptions.

We have not deemed it necessary to offer premiums for lists of subscribers, as is done by some of our cotemporaries, and which we for a while practised ourselves. We found that nearly all the clubs sent us were obtained by our friends, for the good of the cause, and from motives of appreciation of the advantages attendant upon the circulation of the *Farmer* in their respective neighborhoods, and it was mostly the case that those who were entitled to premiums under our offer, peremptorily declined their acceptance.

Those, however, who may make a specialty of obtaining subscribers in their several localities, and are disposed to make it a matter of business, we promise to deal most liberally with, to recompense them for the time and labor thus employed.

The Horticultural Society.

Our correspondent, on another page, Mr. Kerr, himself an experienced fruit-grower and nurseryman, takes exception in some measure to the direction given the work of our State Horticultural Society; and we agree with him that it does come short of filling its whole measure of usefulness if it neglects any opportunity of contributing to the well-doing of the fruit interest of our State—an interest every year expanding in magnitude, and already of vital importance.

The orchards, gardens and truck-patches of Maryland give a very considerable proportion of the total yield of her lands; and in the various processes of the cultivation, shipment, marketing and preservation of their products, so large a number of our people are employed, that the economic aspect of the subject is of great consequence. In many ways could an active society help our fruit-growers; and the perfected machinery and achieved standing of the existing one would contribute to effectually begin the work.

We are confident the Executive Committee would be pleased to have Mr. Kerr and other gentlemen throughout the State, point out practical and effective modes for the carrying out of such a programme. It only needs, we think, a comprehensive enough system of work to stimulate all our fruit-growers to a full support of the society, and to secure from the society the reciprocal aid needed for the furtherance of their interests.

We do not mean to indicate that our State Society should be converted into a fruit-growers' association merely; but features might be adopted from similar societies of the West, which

are almost wholly pomological in their aims and literature. From their practical work they are supposed to deserve, and accordingly receive, considerable support from their respective States, which enables them to secure the services of competent scientific men for the examination of the causes of failure in fruit culture, the remedies for insect pests, &c. Such aid could hardly be expected to a society having only in view the improvement of public and private taste—however commendable that end in itself.

The ascertaining of the best varieties; the investigation of such topics as the *yellows* in the peach, (an ever-threatening danger,) the peach *aphis*, (an already-present calamity,) and other diseases and insect enemies, would open out a wide range for our society, in no wise incompatible with what it attempts in other fields, and which, properly followed up, will not only attract to its membership all our fruit-growers, but result in the most important services for advancing the material prosperity of that class of our horticulturists.

The National Live Stock Journal,

Published at Chicago, is the only periodical in this country devoted exclusively to the interests of improved stock, and its contents are always of a character to be of the highest interest and value to all who are engaged in breeding any varieties of it. The September number was exceptionally superior, not only in the matter, but in illustrations, which comprised twenty-six lithographs, prepared expressly for its use, of horses, cattle, sheep and swine of the various favorite breeds. The *Journal* is admirably gotten up, and is well worth to any farmer interested in improved stock the subscription price, which is $2.15 a year.

The Farmer's Journal.

It is only through inadvertence that we have failed to notice earlier the paper of this name, the publication of which recently began at Raleigh, N. C. The agricultural editor is Prof. W. T. Walters, a well-known and thoroughly competent writer, who alone ought to make the *Journal* successful. It is a weekly, neatly printed; subscription $2.00 a year. Johnstone Jones is the publisher.

Agriculture of Missouri.

From John Monteith, Secretary, we have a copy of the Report of the State Board of Agriculture of Missouri for 1875, containing the proceedings of that body, those of the State Horticultural Society, and also the Eighth Annual Report of Mr. Charles V. Riley on the noxious and beneficial insects of the State.

Officers of the State Horticultural Society.

At the annual meeting of the society, held on the evening of the second day of the exhibition, September 20th, the following gentlemen were elected members of the Executive Committee for the ensuing year: Wm. H. Perot, Wm. D. Brackenridge, Henry Taylor, James Pentland, August Hoen, Jno. Edw. Feast, R. W. L. Rasin, J. Mowton Saunders, Andrew L. Black, John A. Needles and W. F. Massey.

At a meeting of the committee, held the same evening, Wm. H. Perot was re-elected president; R. W. L. Rasin, treasurer, and Wm. B. Sands Recording and Corresponding Secretary.

THE MARYLAND AGRICULTURAL SOCIETY.—A call was issued for a meeting early last month for an election of officers, but according to the daily papers there was not a quorum present, and the former officers hold over.

The Centennial Cattle Show.

This department of the great exhibition at Philadelphia has not proved as successful as was anticipated,—occasioned mainly, no doubt, by the distance from the principal show grounds. The number of animals was quite limited, but generally very superior in quality.

There were only twenty-three short-horns from the United States, including six heifers and a bull recently imported from Queen Victoria's herd and descended from her premium cow Cold-cream. These are the property of Mr. George Grant, of Victoria, Kan., and go to reinforce his already large herd on the Plains. Six head of short-horns from England, belonging to Benjamin St. John Ackers, of Gloucestershire, were exhibited and for sale. There were also twenty-eight animals from Canada of this breed, with some of other breeds, none of which were of more than ordinary merit.

There were a few Devons, Guernseys, Holsteins, and Herefords on the ground, but the Jerseys were the cream of the exhibition. Prominent among the exhibits of this breed were specimens of the herd of Mr. William Crozier, of Northport, Long Island, N. Y. A pair of his animals—the bull Cossack and a cow, Josephine—could hardly be excelled anywhere. Other choice Jerseys were shown by Saml. J. and Chas. L. Sharpless, of Philadelphia, and some other exhibitors from Pennsylvania, New-York, and Connecticut.—Among these were numerous cows which are credited with having made or making fourteen to seventeen pounds of butter weekly. There were forty-six Ayrshires, of which many were beautiful animals, showing, however, a considerable tendency in their breeding to fineness of bone and form rather than heavy milking, for which this breed is to be chiefly considered. In these again Mr. Crozier's contribution was very prominent for its beauty and excellence.

Renew your own subscription promptly, and send on one or more new ones with it. Five copies one year for $5. Can your neighbors afford to do without it?

The Sheep and Swine Show at the Centennial.

The display of Sheep was notable as including some very fine flocks, but their number was nothing like what was to have been expected, or indeed what was entered. A flock of Cotswolds, from Mr. Russell Swanwick, of England, was of the highest quality, and the *Country Gentleman* says a flock of twenty-one such sheep was probably never before seen on this side of the ocean. They were afterwards sold at auction, at prices varying from $54 to $120, the average being about $82. Besides these there was only one other exhibition of Cotswolds—from Canada.—From the same country was a single lot of Leicesters, and two of Lincolns. There were two flocks of Oxford-Downs, one from Mr. T. S. Cooper, of Penna., the other from England; and one lot of Shropshire-Downs from New York. South-Downs were exhibited in large numbers; all the American-bred ones suffering, however, says the same journal, by a comparison with the fine lot bred by Lord Walsingham, of Merton Hall, England, none of which weighed less, probably, than 250 lbs., and many exceeding 300 lbs. each. These, too, were afterwards sold at from $50 to $155 a head, averaging $73. The Merinoes were very creditably represented from all parts of the country, but the effort to sell them at public auction was entirely unsuccessful.

Of swine the display was large, Berkshires taking the lead,—the herd of Mr. T. S. Cooper, of Penna., being conspicuous for merit and numbers. Chester Whites were numerous. Small Yorkshires were also largely shown. There were only a few Suffolks, and a single exhibition of Essex. The attendance was not very large.

Prizes on Jerseys at the Centennial.

The Jersey Cattle Club prizes of $1,000, were competed for by some 150 head. The awards were as follows:

To the best female, $250, to Samuel J. Sharpless, Street Road Station, Chester county, Pa., for imported fawn-and-white cow Niobe, 18 years old.

For the second-best female, $100, the same, for imported fawn-and-white cow Cyrene, 9 years old.

For the best male, $250, to F. R. Starr, Litchfield, Conn., for American-bred fawn-colored bull Litchfield, 6 years old.

For the second-best male, $100, to H. J. Lothrop, of Suffield, Conn., for brown-and-white bull Bellini, 3 years old.

For the best herd, $300, to Charles L. Sharpless, of Shoemakertown, Pa., for herd headed by the brown-and-white bull Chelton Duke, 4 years old, and the cows Milkmaid, 9 years old, gray; Black Bess, 7 years old, dark brown; Iberia, 9 years old, gray-and-white, and Lady Maid, 2 years old, solid black.

The Tobacco Crop in Virginia.

The *Danville News* says: Receipts are light in this market, and prices for the past two weeks remain unchanged. Fine wrappers and extra quality working fillers are in demand and sell readily at quotations. It seems to be now settled beyond doubt that the crop of this year's growth is the most complete failure known to the oldest inhabitants. An intelligent and well-informed gentleman from Henry county, who is not directly interested in any way in the tobacco trade, tells us that after careful inquiry he is decidedly of the opinion that not over one-tenth of an average crop in quantity has been housed in his county, and of that a large part is of very inferior quality. Many farmers cut their tobacco green to save it from frost, while those who took the risk and allowed it to stand suffered by having much of it badly stained. These are misfortunes which no care in curing and handling can remedy, and as Henry county furnishes the principal portion of the rich fine sweet fillers which have made goods manufactured in Danville so celebrated, the failure of the Henry crop must inevitably produce a serious effect on our trade interests. Those who have old stock on hand will do well to hold it, as it must undoubtedly be greatly in demand, and will advance in price, as the fact becomes generally known how short the crop really is, and how inferior the quality is of the small quantity that has been cured.

The Tobacco Worm Encounters an Enemy.

Mr. Joshua M. Rice writes the following letter to the *Clarksville* (*Tenn.*) *Tobacco Leaf*, regarding an effectual insect enemy of the tobacco worm—an Ichneumon fly:

I promised after frost to give you the result of further experiments with the tobacco worm and the Ichneumon fly. Not a single worm has escaped the Ichneumon fly, although the tobacco worm has been more numerous this season than for years; yet on my place there has not been one-fourth as many as there were last season. I have everything attractive to the tobacco fly—flowers always in bloom, tobacco, tomato and night-shade, yet they do not appear. In August, when the worms were so numerous, the Ichneumon was so abundant that they killed most of the worms when about the size of a large rye-straw.

I am glad to say that my other article was not entirely unheeded by the farmers. Many have told me they had forbade the killing of the cocoon-covered worms, and that they were getting quite numerous. A gentleman in town, a mile from my place, tells me he has a great many of them on tomato plants. I put a worm under a glass as soon as the cocoons appeared on it, and in four days the flies came out. I put a large, vigorous-looking worm under the glass; the next morning both worms were dead. I suppose they were stung to death.

I hope the farmers of the tobacco-growing district will give this subject their attention next season, for there is no reason that the tobacco worm should not be exterminated. The Ichneumon fly is not like the Western grasshopper, coming at long intervals, but has been in the country for years, as old farmers tell me, and experiment has demonstrated that he will increase fast if protected. Let any one who has the time make the calculation. The Ichneumon fly undergoes a complete round, from egg to

egg-laying fly, in ten days. The eggs deposited in one worm average about 100—supposed to be deposited by one fly. The worm season lasts about ninety days. Think of nine multiplications in one season. The tobacco fly does not perform his round in less than thirty days. See the advantage the Ichneumon has over it. With the tobacco fly exterminated, the lands in the Clarksville district would be better than any gold mine yet discovered, for one hand could cultivate and house ten acres if there were no worms.

Perique Tobacco.

The *Home Journal* of New Orleans gives the following account of the origin of the name and the method of producing this fine-flavored and pure tobacco:

It is said that Pierre Chenet, of the parish of St. James, called by the Spaniards by the nickname of Perique, is the inventor of perique tobacco. This is a mistake which should not be allowed to go uncorrected. Pierre Chenet might have improved the process of manufacture, and so have given its present name to it, but the process of making this kind of tobacco was known to all the Southwestern Indians of Louisiana, Texas and Arkansas, and is still made in a rude way by many of the tribes.

As made in Louisiana it is a positively pure tobacco without any doctoring. Some of the Indians, as the Caddos, Kiowas, and Pascagoulas, though making it in the same manner it is now made, were in the habit of boiling down the root of the wild plum or Sloe, and sprinkling the leaves from time to time with the decoction; but those Indians who could not get the wild plum did without it and really made the best tobacco.

The process used in Louisiana, in the parishes of Jefferson, Lafourche, St. John, St. James, Ascension, Assumption and on Red River, among the Creoles, is that taken from the Houma and Bayou Goula Indians.

The tobacco is raised as any other tobacco, with unusual care to keep off worms. When cut it is dried in the air, suspended in the usual manner, but in the shade, and no fire is ever used. When thus dried, it is stripped of its leaves and stemmed; the leaves are put into twists of one or two pounds, the old Virginia twist; it is then put into a strong box, usually an oak box, in which Virginia chewing tobacco had been; it is packed tight into this box and put under press. The next day, and for several days after, these twists are taken out and unwrapped, and the leaves are rubbed in the hands as a rag would be washed; they are then re-twisted and kept under press. After a few days the tobacco will begin to grow dark, and then the rubbing may be done at longer intervals—first, every other day, then twice a week, then once a week. In about five weeks the tobacco will be ready to work up. At the beginning of the process, the best leaves should be selected as wrappers, and though not twisted should be manipulated in the same way as the rest, every day that the twists are worked, but should always, after working over, be put one over the other and pressed flat. These wrappers should be spread out on a table, enough to cover a roll or carrot, then two or four or five pounds of the unrolled twists should be straightened out and made into the form of a cigar, as big and long as the arm from the elbow to the hand; this should be carefully rolled with the spread leaves and the ends tucked in squarely with the wrapper. A cord or plow line should then be tightly wrapped from one end to the other of this roll, and allowed to remain on it for some hours, when the process should be repeated three or four times—by which time the carrots are complete and may be laid away in a cool place. Though it may be used immediately, it improves by age until ten years old. This is all the secret of perique tobacco—patience and care.

Hungarian and Fodder Corn.

This is the estimate of Dr. Sturtevant, in the *Scientific Farmer*, of the value of these two crops:

We are more pleased with Hungarian grass than ever. This crop appears adapted to our land, and especially to our most fertile fields. One field, in good heart, and with a light chemical manuring, returned us fourteen two horse loads of Hungarian hay from three and a quarter acres; while another field, extremely run down, and also treated with chemical fertilizer, gave us four loads from two and a half acres. We cannot estimate these loads at less than a ton each—but this would make about 4½ tons per acre of good, sweet, early cut Hungarian hay, and it has been our habit to deny the possibility of such a farm crop—yet what can we do in the face of the fact? Let our readers estimate each load as seems to them best, and in the meanwhile our cows will eat away, and be content, and the milky streams will flow in the twilight of morning and eve, and the cows, in the face of their abundance, will scarcely inquire about exact weights.

Our fodder corn has been of great service to us in easing our pastures. An acre or so in drills, and the plants from 8 to 9 feet high, scarcely shows its daily diminution, yet the cattle are fat and contented, and the milk flow continues abundant. And such milk as corn fodder gives: rich in fats, and sweet in flavor, it seems surprising how any practical farmer could decry the advantage of planting fodder corn, after having once tried it, and I in the right way. For our own part, we suspect, but don't tell anybody, that the talk against fodder corn comes from fancy farmers, whose farming is but a lighter diversion from politics or business.

A Site for the Bee Hives.

For a site the best is on a place sheltered on all sides from winds, without excluding the rays of the sun. If this cannot be had, the next best is one screened from the southwest, west, and north. In a garden surrounded by a low wall, we would plant a hive 3 or 4 feet in front of the north wall, and nearer to the west wall than the east one. If the wall were very high, and sent back a strong reflection of mid day, we would plant the hive at a distance of 3 or 4 yards from it. But for greater ease of flight to bees over a high wall in every direction, a site near the center of the garden is preferable.

It is difficult to give instructions applicable to all places; the most eligible situation, and least

exposed to gusts of wind and eddying currents, must be discovered by observation and experience. Any mistake made at first in finding it can be afterwards rectified.

On a dry soil, 9 inches is sufficient height for the hive to be raised above it, and if the hive, like those of cottagers, rest on three or four posts driven into the ground, each post should be nearly 2 inches from the outer edge of the floor-board to make the ascent of mice difficult or impossible. The floor-board need not be fixed, but to prevent accident from a gale, cords crossed at right angles, and passing over the hive, may be tied to the posts.

Let the hive incline a little in front, to throw off rain, and on the ground before it let nothing higher than strawberries be grown, as bees in going out to the fields and returning home not only dislike obstructions in their way, but have their labors thereby impeded.

It is desirable also to have a currant or gooseberry plot near a hive, that swarms issuing may be tempted to go thither and settle on one of its bushes.—*Rural New Yorker.*

[For the American Farmer.]

Centennial Pictures—No. 3.

BY JANE BOSWELL MOORE BRISTOR.

Elegantly carved pieces of furniture in the Women's Department have sensible mottoes: "Morning hours have gold in them," "Kindness and Truth," "Seed time and harvest shall not cease," and on a writing desk the reminder—"The prudent penning of a letter." Some handsome articles were made by a young Swedish woman, who was passionately fond of working in her father's shop. At sixteen she made a bureau, and after her father's death worked at his trade to support her mother. When "living out" in this country as a housemaid, she made several pieces of furniture, her tools being of skirt wire, and materials found round the house. From the spacious dining hall of Mercer's Southern restaurant you catch a glimpse of the rear porch of "Ye New England kitchen of ye olden time." At the end of a short path you are before the low building, with its old-fashioned gate, garden of peonies, lady-slippers, marigolds, homely herbs, tall hollyhocks, and time-honored morning glories. Jerusha and other thrifty damsels, in ancient attire, are within, spinning, and showing the curiosities of the place. The cradle is here in which Miss Peregrine White was rocked on her way over to America in the cabin of the May Flower. The patient research of the proprietor, Miss Southwick, has brought to light many valued heirlooms, primers, with rude rhymes—

"Young Obadias,
David, Josias,
All were pious."

"As runs the glass,
Our life doth pass."

Coats worn in various battles by Revolutionary heroes; clocks two hundred years old; tables, which for use, convenience and adjustability, are not like the model ones of Lambic and Sargent; bonnets of all styles, the most outlandish to our taste exceeding in beauty and becomingness the flaring hats of the present, which invite neuralgia and other comfortable maladies; and an array of quaint china, which would have warmed the genial soul of Elia. There are photographs, too, of the damsels of to-day in the costumes of the Revolution, which are curious and pleasant reminiscences of the first centennial.

In the American Hall of Sculpture, we should have been glad to have seen Pisani's excellent household statuettes of the great masterpieces of Italian art, the works of Shorwaldsen and Michael Angelo; especially, however, the Venus of Milo and Apollo Belvidere. Few better services have been done to art in this country than placing these immortal works within the reach of the people. The copies are admirable and the pictures of ordinary bracket size. Models of soundings at Hell Gate are full of interest. There were no less than twenty thousand soundings to find the topography of the rock, besides the drilling of six or seven thousand holes in the roof and pillars, in which explosives were put.

What bright glittering eyes have these Tunisians in their cafe. The Moorish Villa is extremely small, with every imaginable color mixed in a style not pleasing to our American taste. Ten thousand dollars is said to be asked for it; we should think it dear at five hundred. Near it in a dell is the building of the American Safety Fusee Co., the match which has been most thoroughly tested, and is harmless if eaten by a child, lighting only on its own box. In London the average cost of putting out each fire is ninety dollars; in Liverpool sixty; in Dublin one hundred; in our city of Boston seven hundred and eighty-five dollars; in Baltimore, where we all know they are common enough, four hundred and fifty dollars; in New Orleans eight hundred and sixty. Of course, all is defrayed by taxation; and as many of these fires are caused by the use of lucifer matches, their use should be prohibited by law.

Passing a very beautiful display of velvet frames and passe-partouts, by Lewis Pattberg, we pause before the case of Appleton, the publishers. Here is the only copy extant of the first book published by the house; a tiny relic in a case of its own, and, of course, not to be bought at any price. It is a volume of wise sayings on Bible texts, not two inches by three. Now, the mere list of their publications fills a goodly pamphlet, while the American Cyclopedia, that great national undertaking, and "Picturesque America," are foremost in the awards for fine bindings.

In Agricultural Hall is the rough, wooden, iron-plated plough of seventeen seventy-six, beside the light sharp-cutting steel of the present; a potato planter which will do the work of twenty men, making the furrow, cutting and dropping the seed and fertilizer, and covering them up at one operation; a two-horse machine, which will do the work of ditching more rapidly than forty men; a corn-sheller which shells two hundred bushels of corn by hand per day; a butter-worker which will work seventy-five pounds in from three to five minutes; various exhibits of oatmeal and barley, among which that of the Miles and Holman brand, New York, is most excellent, the oatmeal not being distinguishable by many

from the famous Scotch and Irish brands; pine shingles from a tree under which the discoverers of Columbia river took their dinner in eighteen hundred and four, the same tree yielding one hundred thousand shingles, and the remainder fifty-eight cords of wood. From Colorado is a stone of five hundred pounds weight, in which you cannot see gold at all, yet it contains five thousand dollars worth of the precious metal. In Little Rock, Arkansas, they have mines, huge as mountains, from which they could supply the world with whetstones. The New York Silicate Slate Co. shows a great variety of these light-coated portable slates, in the form of books, diaries, and pocket slates. Mr. Jocelyn, the President, is an expert rifleman, and many visitors are attracted to the case by a fac-simile of the Creedmore and Morsemere targets, showing his prize shots.

Displays of Russian malachite; amber from the shores of the Baltic; Irish bog oak, thousands of years old; and Mexican onyx, of great delicacy and beauty, are well worth seeing. But no foreign stones exhibited struck me as equal to those imported by Victor Bishop, of New York. His Siberian amethysts are of rare loveliness and depth of color. Those who have seen only ordinary ones can have no possible idea of their greatly superior loveliness. Like garnets, these are the only colored precious stones that are worn with mourning. They are found in alluvial soil and also in rocks. There are toys enough in cases to make this a real fairy land to children. In the case of the Orange Judd Co. are the crandal blocks, of various patterns, beautifully colored, yet odorless, waterproof and durable. Twelve pictorial alphat cubes, illuminated, are very skillfully embellished, and of the twelve, five hundred pictures may be made by a child, the different combinations affording amusement and exercise. The menagerie is also very ingenious and attractive.

Fairmount Park, two hundred and seventy acres of which are devoted to exhibition purposes, abounds with Revolutionary memories and relics. Robert Morris, the financier of the Revolution, lived here twenty-eight years.—The Peters mansion bears date seventeen forty-five. Mount Pleasant was the marriage settlement Arnold made to his wife, and forfeited after his treason. Baron Steuben here wrote his famous "Regulations," disciplining the raw American army. Part of the battle of Germantown was fought here, a monument being raised to Virginia solders who fell in the struggle. Near the Wissahickon is the house in which Rittenhouse was born, and the first paper mill in America, built in sixteen hundred and ninety.

Advantages of the Grange.

"Granger," a correspondent of the *Rural Carolinian*, writes thus on this head:

We are taught that the Grange is an educational institution, and very many of our members cannot see in what way this education is to be acquired; but I propose in this article to show to my brothers and sisters of our noble order, how we, in Sandy Springs, educate ourselves.

In 1874 our Grange determined to experiment with wheat, particularly in two points: First to know the capacity of one acre of land; secondly, to ascertain, if possible, what would prevent rust; and, accordingly, we set to work to stimulate our members, and get a number of them to compete for a premium of fifteen dollars offered. Several entered their names as competitors, with the requirement that a complete and detailed statement of the mode of preparation, cultivation, manures used, how much, and of what kind, etc.; and, to the surprise of all, the award was to an humble member, who it was supposed was an old fogy, and would never aspire beyond five bushels per acre; but, to the delight of all, he reported a yield of twenty-five bushels from one acre, profiting by experience and the knowledge of others.

The Grange urged the second trial with several by his side, and he reports one hundred and seventy-five bushels from six acres, and thirty-five and a half from his select acre; thus you see making great advances and gaining more knowledge.

Never dreaming that we had in our midst a mind that for the past forty years had been dormant for want of exercise, yet encouraged, we insisted upon the third trial, and especially requested that each should, in connection with their other report, give us their opinion as to rust in wheat.

Now the crop of 1876 has been harvested under many difficulties, and there was not a single exception in the neighborhood but what had rust, and badly. But our old brother contended that it is a poverty disease, and by the applying of forty bushels cotton seed, two hundred lbs. acid phosphate, and turned with a good crop of pea vines, that there was sufficient ammonia in the cotton seed to grow the stalk; and the acid phosphate and pea vine contained all other ingredients exactly to correspond, one with the other. And it seems that his philosophy is good and correct, when he reports a yield of thirty-three and one-third bushels from his select acre, and several acres that made an average of twenty bushels per acre. There was but one or two small patches in this acre that showed the least sign of rust, and these were red spots that he claims received too much cotton seed for phosphate of lime. Now this brother is authority on wheat in our section, and if this does not show conclusively that the Grange can and has been made an educational institution, then I am clearly mistaken. This knowledge, which he is required to give to our members annually, cannot be had in any other way than by practical experience, and as we all get the benefit of his experiments in a few words, we are profiting by them, and several others have gone beyond twenty bushels per acre. We are determined never to stop until we drive him from his thirty-five bushels, believing that fifty bushels can be made, and that he will do it.

If the Grange hasn't improved and strengthened your mind, then it has done you no good worth mentioning, even if you can tell of many dollars saved or gained through the Order. The grand object of the Order is to put farmers and their families and their work on higher plane; upon the same plane occupied by those of other callings and professions.—*R. H. Ryland, Master La. State Grange.*

A Grange Fair.

Gunpowder Grange, No. 127, of Baltimore county, Maryland, held last month a show of farm products. There were no premiums offered, and the only object was to bring out samples of the best products of the farms and gardens of the members. The essay was successful, the interest being animated and marked. Fruits and vegetables were shown in great abundance. One list of apples which we happened to see contained 44 kinds, comprising, in addition to the sorts usually cultivated in this section, many varieties of Southern origin.

Hygiene.

Health of Country Homes.

The House.—The only probable source of danger to health in a farm-house lies in the condition of the cellar, or of the space which separates the lowest floor from the ground. If there be a cellar, observe whether it is dry and free from standing water or decaying vegetable matter (allowed to accumulate there through the negligence of servants.) If the house is built upon the ground, the lower floor should be at least 18 inches above the ground, and the sides should be so open that the air can circulate freely through the space.

The Well.—If the water is clear and sweet, and free from any unpleasant odor, one may pretty safely assume that no harm is to be anticipated from this source. Farmers are often in the habit, however, of hanging meat in the well for the purpose of keeping it cool. A pretty severe epidemic (in 1874) of diarrhœa, in a boarding-house at one of the healthiest Long Island summer resorts, was traced to the existence of a decomposing shoulder of mutton at the bottom of the well, into which it had accidentally fallen.

The Privy.—These is little or no danger from contamination of the air by the contents of the privy. The real danger lies in the diffusion of these contents through the soil and their contamination of the water of the well. To avoid such a possibility, the privy should be placed at least 60 or 70 feet from the well, and—if the direction of the natural drainage currents be known—in such a position that the contents of the privy will drain away from the well. Better yet, let the privy be so constructed that its offensive contents shall simply lie upon the surface of the ground, and let there be easy access to it from behind, so that fresh earth may be frequently added, and the entire accumulation removed, say once a week.

The Slops.—How common is it for the kitchen authorities in a farm-house to throw the slops upon the ground, just outside the kitchen door, and perhaps within six feet of the well. I have known of a boarding-house epidemic of diarrhœa which could be traced to no other source than the contamination of the well-water by a shallow pool of sun-exposed, foul-smelling slops. A cemented cistern should be built about 75 or 100 feet from the house, and at a distance from the well, and to this all the kitchen slops, vegetable waste, &c., should be conducted through a suitable pipe or conduit. From the cistern these matters may be fed to the pigs, or thrown upon the ground at a proper distance from the house.

The Ice.—The ice may be so loaded with foul vegetable matter as to give rise to quite severe disturbances of the bowels and stomach. If it be found free from imbedded impurities, and if, when melted, it be free from an unpleasant odor, one may safely assume that no danger is to be anticipated from this source. An interesting epidemic of bowel troubles were traced to impure ice last summer at Rye Beach.

Drainage.—This is a more difficult subject to investigate, and one concerning which I hardly dare venture any remarks in this place. In a general way, however, the statement may be made that pools of standing water, or marshy flats near brooks or streams (except perhaps at the seaside,) are not desirable neighbors. This is especially the case if the house in which you live is situated in a hollow (as in some mountain valley, however elevated it may be above the sea,) where the air does not freely circulate. The prevalence of typhoid fever in some of the Vermont and New York mountain valleys, especially in early autumn, is probably to be explained by the existence of just such conditions. In the case of a large hotel, the investigation should be practically the same as in the case of a farm-house. The difficulties in the way of such an investigation will be found, however, to be much greater, and it would probably be better in such a case to secure the assistance of some physcian or engineer who is familiar with the subject.—*New York Tribune.*

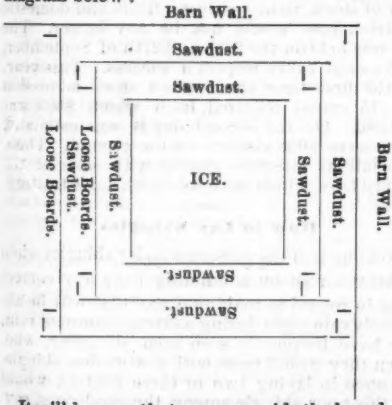
Ice and Ice-Houses.

The following plain directions for a simple method of storing ice, we take from a late issue of the *New York Times.* We have seen nothing better upon this subject for many a year. We ask our readers to consider its directions carefully, for the ice season approaches apace and they should be prepared to take advantage of it:

A store of ice is now considered as an absolute necessity for the dairy, and it is certainly very acceptable for the household. Every person who lives "in the country," with very few exceptions, may have a supply of ice if he wishes it. The first thing to be secured is the ice; the ice-house is really the simplest affair possible. Upon every farm where there is a stream, an ice pond may be made with little trouble and at a small expense. To dam up the water and make a shallow pond is easy enough. To do this drive a few stout stakes or posts on the line of the proposed dam, carefully leveling their tops by stretching a cord from end to end of the row, and applying a spirit level to the line. Then nail boards to the posts in the manner of a tight fence, placing the lowest edge close to the ground. It would be better first to plow a furrow, and set the post in it, nailing the lowest board closely down to the earth; then plow furrows toward the boards on the inside, or the pond side, packing the earth down closely, and continue this until no more can be plowed, when the earth loosened by the plow may be thrown into the dam with the shovel. A week's work will

make a dam large enough to raise a large pond. When this is done planks should be placed against the posts that have been driven in the edges of the stream, and on the pond side, so that the pressure of the water will hold them against the posts. This will raise the water that should flow over the upper plank and not over the dam when the pond is full. Every ten feet square, or 100 square feet of surface, when frozen six inches thick, will yield a ton and a quarter of ice. A pond 100 feet long and 50 feet wide, frozen six inches thick, will yield over sixty tons of ice, or enough for ten families, each having a dairy. Six tons of ice, allowing half to waste, (which should not be allowed,) would furnish fifty pounds a day for four months. This would supply one of the Hardin milk refrigerators large enough for a dozen cows. By selling the surplus ice to neighbors the cost of the pond would be repaid the first year. One dollar a ton would be moderate charge for the ice; the purchaser to cut it for himself. Forty cubic feet may be given for a ton.

To make the ice-house, the following plan will answer as well as the most costly one: Take a corner of a barn or outbuilding on the north side and mark out a space one foot from the wall on each side, seven feet square, to hold five tons of ice, or ten feet square if ten to twelve tons are required. Tack or "toe-nail" at each corner a piece of scantling eight feet long, and nail to them some rough boards so as to inclose the space marked out on three sides. Leave the fourth side, which should be toward the inside of the barn, open. Fix scantlings outside of the space, and one foot from it, toward the inside of the barn, to support an outside wall, as shown in the diagram below:



It will be seen that upon one side the boards are left loose. This is done that the ice can be packed, and as it is packed these boards are placed one by one as the pile rises, and as the ice is taken out they are taken away one by one. A supply of sawdust is then to be procured. Tan-bark, oat-chaff, wheat-chaff or cut straw may be substituted; their value being in the order in which they are named. When the ice is ready, and the place prepared, six inches of sawdust is laid smoothly upon the bottom of the inner space, and some smooth-edged boards are laid upon it beneath where the ice is to be piled. This is to exclude air from beneath as much as possible, but yet to keep the floor dry. When a foot of sawdust is laid upon the floor, and the ice cut in square pieces of even size, so as to pack solidly, it is piled in the centre, leaving a foot of space between it and the inner wall. As the pile increases in height the sawdust is thrown in both spaces and trampled down closely, the loose boards being put in place as needed. When the pile is seven or eight feet high, or high enough, the whole is covered with a foot and a half of sawdust. The top one of each set of loose boards is nailed firmly to the posts to keep the walls from spreading; this should be done at the commencement. It is not necessary to do anything further, as ice may be kept very well in this way without any more protection than adding covering to the top, if necessary. It would be a safe precaution to block up the floor timbers of the barn beneath the ice, to support the weight. To make any sort of ice house, the plan here outlined may be adopted. It must be borne in mind that the floor beneath the ice must be air-tight, and yet thoroughly drained; that the walls must be double, and perfectly free from any currents of air; that the ice must be surrounded on all sides with a porous, dry substance, and one as perfectly impermeable to air as possible; that the top covering should be at least eighteen inches thick, and need not be tightly closed in, but must be protected from the sun, and that the ice must be packed closely and solidly, and in freezing weather. If these requirements are observed the ice house may be anywhere, or of any material, size or shape whatever. We hope that those of our readers who intend to put away ice, or expect to, or may by any probability do so, will cut out or preserve these directions, and not ask for them to be repeated.

Cooked Feed for Hens.

A writer states in the *Poultry Standard* that people would better understand this matter if they considered for a moment a hen to be, as she is, a small steam engine with an egg-laying attachment, and that there must be a constant supply of feed and pure water to keep the engine and its attachment up to its work. In addition to keeping before hens that have complete liberty a constant supply of pure water, summer and winter, I have found during the cool and cold weather of fall, winter and spring, a dough compounded as follows, fed one day and then intermitted for two days, to produce excellent results: "To three gallons of boiling water add one-half an ounce of common salt, a teaspoonful of cayenne pepper and four ounces of lard. Stir the mixture until the pepper has imparted considerable of its strength to the water. Meantime the salt will have been dissolved and the lard melted. Then, while yet boiling hot, stir in a meal made of oats and corn ground together in equal proportions until a thick mush is formed. Before feeding, taste to see that you have an overdose neither of salt nor pepper and to prevent the hens being imposed upon with a mixture not fit to be eaten, nor so hot with pepper that you could not swallow it.

Mr. Holman's "Fertilizers Ventilated."

We find in the Book Reviews of the *Scientific Farmer* the following appreciative and very favorable notice of a pamphlet, by a valued and intelligent correspondent of the *American Farmer*—Mr. William Holman, of Cartersville, Va. The pamphlet is made up, indeed, as we believe, (though the author has neglected to send us a copy in its present shape,) of papers which were originally prepared for, and which appeared in our own pages, where we took occasion to give, our own estimate of their value and timeliness:

"We are pleased with this pamphlet with the opening sentence, 'the farmer should understand the tool he works,' and we are prepared to read it carefully and conscientiously. Strange, indeed, the 'open sesame' of a single sentence in the right place.

Our author briefly, clearly, and with sufficient thoroughness, treats of the elements of plant food, the origin of soils, and of fertilizers. This last chapter is quite full, and leads gradually from the elements essential to be supplied the crops, to their application. We note, however, the influence on his mind of locality, by the recommendation to obtain nitrogen supplies from the air, through the plowing under of green crops. Wherever home markets are wanting for green crops, and their outgo in other forms, this is a judicious recommendation, and good practice. Yet our writers, as a rule, ignore the fact that in localities favored with home markets, the green crop may be more valuable for sale or for fodder than it is for manure. Where clover is worth but $10 a ton after being hauled to market, it may answer to plow under, and thus utilize its fertility; when, however, it is worth $20 at the farm, it would be poor economy to plow it under, and thus lose one year's return from our land, because a portion of this sum would purchase nitrogen from other sources, and leave a surplus for profit. What our agricultural districts need most are home markets; the advice our farmers need most is to economize their resources. The good farmer uses green crops for manure, when such a course is the cheaper; he buys his manure, when this course is seen to be more profitable. We do not underrate the advice to plow under manurial crops, but we like to see prominence given to the fact that one pound of available nitrogen is as good in one form as another, and so of the ash elements of plant food. We like to see the stress laid upon the matter of plant food, and the advice as to the how to obtain this food for our land in the cheapest way.

It may be slightly unfair to our author to say that he has not realized this fact: our criticism must be that he has not given it the prominence that we think it deserves. These little essays are, however, of great value, as leading our farmers to think and to know, and their persual must bring benefit in its train. Our author has succeeded in making a readable and instructive essay, and one of real value. His argument, on p. 18, of the advantages of using high grade fertilizers is incontrovertible.

We trust that the effect of such essays will be to lead our Southern States—we refer to these more particularly as being so largely agricultural—to pass a fertilizer law for the protection of the farmer. The Massachusetts law is a good model to frame one from, as it has proved such a protection to the farmer and the honest dealer, and has already proved itself of great benefit. At present the South is a recipient of a large quantity of goods which would be unsalable in Massachusetts or Connecticut, and it behooves its legislators, who desire to aid in the development of their State, to look to it that the farmer shall have an opportunity to receive what he pays for. In the nature of the case, an article like fertilizers should be sold under guarantee, and the State should do in its corporate capacity what the farmer can ill do for himself—see that the guarantee is a sufficient one. The appointment of inspectors has been of great service to the fish trade, the meat business, and various others, and the extension of this idea to fertilizers has been of incalculable benefit to those States which have adopted it.

A Novel Agricultural Fair.

The well known and venerable Levi Bartlett, of New Hampshire, gives the *Country Gentleman* this account of an agricultural fair in his vicinity, conducted on a novel plan:

Some five years ago the Kearsarge Agricultural and Mechanical Association was organized, consisting of some ten towns surrounding Warner. The association has some twenty acres of land at Warner, enclosed by the Warner river and a high wood fence. There are no premiums awarded, but such is the interest manifested by the farmers in this section, that it is thought if premiums were offered the exhibition of stock, farm products, fruits and domestic contributions, would not be any larger. The fair was held on the 26th and 27th of September, and was in every respect a success. This year, for the first time, there was a small admission fee (15 cents) required, from which $600 was realized. On the second day it was estimated there were 3,000 visitors on the ground. These associations interfere greatly with some of the county fairs, which have too much horse trotting.

How to Lay Shingles.

Not one-half the persons who lay shingles when making a roof on a building have any correct ideas in regard to making a roof that will be absolutely rain-tight during a driving storm of rain. We have frequently seen men shingling, who, when they would meet with a worthless shingle, say once in laying two or three courses, would lay this poor shingle among the good ones, saying: "It is only one poor shingle, one shingle cannot make a poor roof." But one poor shingle will make a leaky one. If first-rate shingles are employed, and one poor one is worked in among every 100, that roof might about as well have been without any shingles. If any poor shingles are to be used, let them all be laid together near the upper part of the roof. The best of shingles will not make a tight roof if they are not properly laid, while the same shingles would make an excellent roof if laid as shingles should be laid.—

A PAPER FOR YOUNG PEOPLE.—The *Youth's Companion*, of Boston, is one of the most judicious and enterprising sheets in the country, and in breadth of miscellaneous reading, has no superior.

Baltimore Markets—October 31.

The quotations below are Wholesale Prices.

Breadstuffs.—*Flour.*—Market quiet but steady. We quote: Howard St. Super $4.25@4.75; do. Extra $5.25@5.75; do. Family $6.00@7.75; Western Super $4.25@4.75; do. Extra $5.00@5.50; do. Family $5.75@7.00; City Mills Super $4.50@4.75; do. standard Extra $5.25@5.50; do. medium Extra $6.00@6.25; do. Rio brands Extra $6.75@7.00; Spring Wheat Flour, patent, $7.25@8.25; do. high grade $6.00@6.50; do. medium $5.00@5.50; Patapsco Family $8.50; do. Extra $8.25; Fine $3.25@3.75; Rye Flour $3.75@4.25; Corn Meal—City Mills ₮ brl. $3.00; do. Western ₮ brl. $2.60@2.75; Buckwheat Meal $3.25@3.75 for New York; $2.00@2.25 for Pennsylvania ₮ 100 lbs.

Wheat.—In demand and rather firm, especially prime and choice Southern. We quote, particularly for prime and choice Southern, for which there is an active demand for milling purposes, though there is no quotable change in prices. Sales reported 1,000 bus. common Maryland red at 112@115 cents; 1,500 ordinary to fair do. at 120@126 cents; 1,600 good fair to good do. at 127@130 cents; 2,500 good do. at 133 cents; 2,500 prime do. at 135 @138 cents; 2,000 prime do. amber at 140 cents, and 2,000 choice do. at 142 cents. We note also sales of 400 bus. prime Pennsylvania red at 133 cents, and 400 choice do. said at 135 cents, each track. For Western the market, however, was dull and easier. Sales 800 bus. fair red at 12⅜@133 cents, and 800 prime do. at 126@128 cents on the track. We quote as follows, viz: Southern red, common to fair, $1.10@1.25; do. do., good to prime, $1.28@1.38; do. amber $1.40@1.42; white $1.25@1.40; Pennsylvania red $1.28@1.33; No. 2 Western red $1.28@1.29.

Corn.—Southern quiet. Western active and firm. We quote Southern White 55@56 cents; do. yellow 56 cts.; Western mixed spot 57¼; do. steamer spot 53.

Seeds.—Clover, which continues scarce, we quote firm at 13¾@14¼ cents ₮ lb. Timothy steady though quiet at $2.10@2.15 for prime, and Flax dull at $1.30@1.40 ₮ bushel.

Tobacco.—Receipts of leaf still light, and the market quiet, with the tendency of prices in buyers' favor. We quote: Maryland frosted $3@4; do. common to good sound $4.50@7; do. middling to fine $7.50@11.50; do. fancy $12@17; do. upper country $6@24; do. ground leaves $3@9; Ohio—inferior to good common, $4@6.

Wool.—Tub-washed 35@40 cents; unwashed 24@28 cents; fleece-washed 28@33 cents.

Cotton.—Market active and strong, and we quote as follows: Middling 10⅞; low middlings 10⅜@10½; good ordinary 9¾ cents.

Hay and Straw.—Hay continues dull and weak, with a declining tendency, but straw remains pretty steady. We quote: Cecil Co. $15@16; prime Pennsylvania and Maryland $13@15; mixed $11@13; Clover $10 @12; Wheat Straw $8@9; Oat $10; Rye $14@15 ₮ ton.

Provisions.—There is a fair jobbing demand for provisions offering freely at 7¼ cents. The current figures for jobbing lots packed are as follows: Bulk Shoulders 7¼@7¾ cents; clear-rib sides 9@9¼ cents; long clear sides 9 cents; Bacon Shoulders 8¼ cents; clear-rib sides 10 cents; Hams, sugar-cured 16@17 cents. *Lard.*—Refined tierces 11¼@11¾ cents; Mess Pork ₮ brl. $17.50@17.75.

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Contents of November No.

Feeding Value of Grain, &c.....337
Improved Sheep in Maryland.....338
Crossing for Improvement of Common Sheep.338
American Berkshire Association.....338
Profit of Sheep.....338
Report on "Hog Cholera".....339
Choking.....340
Rubbing the Tail.....341
A Veterinary School.....341
Education and Rural Matters.....342
Our French Letter.....342
German Potash Salts.....344
A Compost of Cotton and Corn.....345
German Millet.....345
Orchard Grass in Virginia.....345
A Heavy Yield of Oats.....346
Upland Rice.....346
Tree Planting in Cities.....346
Peaches and Nectarines.....347
The Horticultural Society.....348
Views on Pear Blight.....348
The Cultivation of Small Fruit for Market..349
Cultivation of the Raspberry.....351
Grape Growing and Wine Making.....352
Fine New Grapes.....352
Floriculture for November, by W. D. Brackenridge.....353
Plants for Bedding, &c., by N. F. F.....353
On Graft Hybrids.....354
Cranberry Culture in Maryland.....355
Work for the Month—Fall Grains; Corn Crop; Root Crops; Plowing; Tobacco; Live Stock; Wagons, &c.....356
Vegetable Garden.....356
The Golden Trophy Tomato.....356
How Cows should go into Winter Quarters..356
Maintaining the Full Flow of Milk.....356
Feeding Young Fowls.....357
Care of Young Poultry.....357
A Cure for Gapes.....357
Care of Bees.....357
The "Farmer's" Campaign.....358
The Horticultural Society.....358
Editorial Notices.....359
Officers of the State Horticultural Society...359
The Centennial Cattle Show.....359
Sheep and Swine Show at Centennial.....360
Prizes on Jerseys at Centennial.....360
The Tobacco Crop in Virginia.....360
The Tobacco Worm Encounters an Enemy...360
Perique Tobacco.....361
Hungarian and Fodder Corn.....361
A Site for Bee-Hives.....361
Centennial Pictures—No. 3.....362
Advantages of the Grange.....363
A Grange Fair.....364
Health of Country Homes.....364
Ice and Ice-Houses.....364
Cooked Feed for Hens.....365
Mr. Holman's "Fertilizers Ventilated."....366
A Novel Agricultural Fair.....366
How to Lay Shingles.....366

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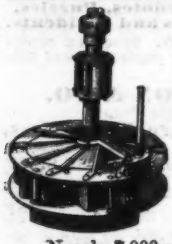

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